Managing regulation in a changing world

Policy communities and the transformation of the water sector in the Australian Capital Territory

Gape Kaboyakgosi

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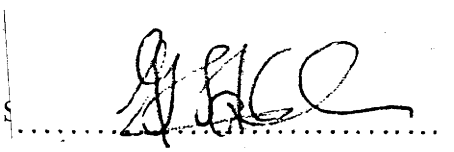
Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any other university, and to the best of my knowledge and belief, this thesis contains no material previously published or written by another person except where due reference is made in the text of the thesis.



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ACRONYMS

ACT-Australian Capital Territory

ACTCOSS-ACT Council of Social Services

ACTEA-ACT Electricity Authority-ACTEW's predecessor for electricity

ACTEW- ACT Electricity and Water

ActewAGL-The public-private partnership between ACTEW and AGL

ACTPLA-ACT Planning and Land Authority

ADWG-Australian Drinking Water Guidelines

AGL –Australian Gas and Light

ANU-Australian National University

CAPEX-Capital expenditure

CEWG-Chief Executives Water Coordinating Group

CGBT- Cotter-Googong Bulk Transfer

CIC-Canberra Investment Corporation

CMD-Chief Minister's Department

COAG-Council of Australian Governments

CRES-Centre for Resource and Environmental Studies

CSO/CSO's-Community Service Obligation(s)

CWRF-COAG Water Reform Framework

DHCC- Department of Health and Community Care

DWQCP-Drinking Water Quality Code of Practice

ECOWISE-Ecowise Environmental (Pty) Ltd

EFG/EFGs-Environmental Flow Guidelines

ESCC-Essential Services Consumer Commission

ESD-Economically Sustainable Development

ICRC-Independent Competition and Regulatory Commission

JHD-Joint House Department

LMWQCC –Lower Molonglo Water Control Centre

MDBC-Murray-Darling Basin Commission

ML (Mega litres-a million cubic meters)

MLA-Member of the Legislative Assembly

MPA-Master Plumbers Association

NATA-National Association of Testing Authorities

NCC-National Competition Council

NCP-National Competition Policy

NSW-New South Wales

NWC-National Water council

NWI-National Water Initiative

OFWAT (England and Wales) Office of Water Services

OPEX-Operating Expenditure

QCC-Queanbeyan City Council

RAB-Regulatory Asset Base

SECG-Senior Executives Water Coordinating Group

UMA- Utilities Management Agreement

WACC-Weighted Average Cost Of Capital

WAC-Water Abstraction Charge

WELS- Water Efficiency Labelling Scheme

WSAA-Water Services Associations of Australia

WSMCAA-Water and Sewerage Management Contractor Alliance Agreement

WTP-Water Treatment Plant

Please note: Unless otherwise stated, legislation or regulations referred to in this thesis derives from the ACT. Commonwealth legislation is given the notation (Cth) to follow any Commonwealth legislation referred to.

ABSTRACT

Can governments if they wish to, change the mode of providing water from government bureaucracies to regulation without undergoing rough transitions? The ACT Government did just that. Using Hancher and Moran's (1989) idea of regulatory space, this thesis concludes that regulatory change in the ACT was made possible because it is carried out by a long standing policy community (Rhodes and Marsh 1992). This policy community includes the utility ACT Electricity and Water (ACTEW) and a number of regulators, most of who used to work with ACTEW's employees when they were part of government structures prior to commercialisation and corporatisation. The essence of regulatory policy in the ACT is to create interdependencies for regulatory resources between actors. Finance, organisational capacities, legal-formal authority, technical, human and other resources are spread between various actors. In order for these actors to successfully realise their aims, they have to exchange resources. That they have to exchange resources however does not mean the actors are equal. Some within this network, including ACTEW and the Treasury retain the discretion to define problems and the type and amounts of resources necessary to address them. Yet there are different approaches to managing the ACT's overlapping regulatory spaces. The challenge for social regulation is managing a corporation better endowed with regulatory resources than regulators. Regulation is made possible because of the trust that actors have in each other due to their long association with each other, knowledge of each other's capacities, regular contacts and 'coordinating' structures. All these matters Economic regulation meanwhile poses a challenge as regulators with no prior professional association with ACTEW perform it. Actors guard their interests by perpetuating low service standards, allowing ACTEW to charge monopoly prices and ensuring that no public controversies arise due to ACTEW's activities. To build consensus in the regulatory space, the ACT Government uses approaches such as responsive regulation (Ayres and Braithwaite 1992), redundancy (Landau 1969) and self-regulation. Such approaches accentuate cooperation through resource exchanges.

In the context of intergovernmental relations, the ACT Government turns water management challenges into engineering solutions, ignores federal initiatives with which it does not agree and, in other instances, negotiates better outcomes. Redundancy, responsive regulation, self-regulation and federalism make appraisal of regulatory efficacy difficult because of the presence of many actors and many instruments in the policy sphere. Thus regulation occurs in an environment of constant negotiation. However, owing to the very closed nature of the dominant policy community and independence among actors, policy problems may be glossed over, or not detected. This thesis tells many stories about management, economic and social regulation as well as intergovernmental relations. Above all it is an account of how a policy community has effected relatively smooth transformations, partly by enlarging itself in recognition of a broader framework of operation embarking collection, delivery and disposal of water in critical economic and social contexts.

1. INTRODUCTION: THE NATURE OF THE PROBLEM

In recent years most governments have retreated, at least in some measure, from direct provision of many services to their communities in favour of achieving various policy goals by means of regulation. Whether for managing telecommunications, nursing homes, water, marketing or transport, regulation seems again to be a popular tool for governments, prompting the thinking that we now live in a regulatory state (Majone, 1997, p. 41-43, Braithwaite, 2000)[1]. This study examines a peculiar development in public policy, the rise in the use of regulation by governments in fields previously served by public utilities and the use of policy networks to enable such change. While initially the favoured method of governments for delivering goods and services was through government departments and other similar types of agency, regulation has taken over as a preferred method in many instances (Majone, 1996a).

While the use of regulation as a tool of government is well documented, explanations of such change normally assume that one organisation, a regulator, wields power with which it shapes the conduct of the regulated (Stigler, 1971, Mitnick, 1980). Recent analyses however indicate that fragmentation, contestation, complexity, and the erosion of 'public and private' spaces characterise contemporary policy environments (Hancher and Moran, 1989, Sunstein, 1990). As a result organisations relate carry out their aims by exchanging resources necessary for policy-making.

The word commonly used to describe these changes is governance; governing where the centrality of state institutions is not assumed (Rhodes, 1997). The term 'governance' has multiple meanings, which include good governance, socio cybernetics and new public management among others (Pierre and Peters, 2000, chapter1, Rhodes, 1997). In this study, the perspective taken of governance is that of self-organising networks. Policy networks are groups of formal and informal policy actors that come together to make public policy. Such

[1] Prior to that, we had lived in 'Keynesian' state which had redistribution and macroeconomic stabilisation as major goals.

networks are important to public policy because they not only supplement but often supplant the formal power of nation states (Braithwaite, 2006).

Managing public policy in a fragmented world has caused peculiar problems for policy. Such challenges include the need to identify new tools of government, rethink management, coordination, accountability and legitimacy (Howlett and Ramesh, 2003, p. 41-43, Pierre and Peters, 2000, Salamon, 2002a).

This study investigates how the water policy community in the Australian Capital Territory achieved a seamless transformation from direct government provision to regulation. While the ACT's water policy sector was changed with the entrance of many independent regulatory agencies that took over the regulatory functions of the ACT Electricity and Water Corporation (ACTEW), such changes have not led to any fundamental shift in policy stability[2]. Instead, various reports show that ACTEW not only attains its regulatory objectives but also surpasses them.

The major finding reached in this study is that it is the interdependent nature of policy actors in the ACT that largely accounts for the stability and continuity of policy-making. Policy actors in the Territory rely on each other for resources, which some only have in part, and it is through these exchanges that policy making is stabilised.

THESIS OBJECTIVES

Given the lack of consensus among the theories of political science and regulation, the key feature of this thesis is a detailed empirical study of water regulation in the ACT. This study uses the policy networks framework to find out what really happens in practice instead of assuming the truth of formal descriptions of what ought to occur.

This study therefore has two objectives:

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[2] The changes that have occurred as a consequence of transforming water policy include changing the 'philosophy' of water policy. Water policy is no longer only about providing cheap, reliable and healthy water. Cost recovery, participation, ecological prudence and federal cooperation are among the new policy requirements.

- To examine whether policy communities enable stable regulatory transformations and, if so, how;

- To introduce a policy network approach to water policy-making in Australia using the Australian Capital Territory as a case study.

RESEARCH QUESTIONS

In order to attain the above two objectives the study addresses the following two questions:

- Do policy communities aid regulatory policy change and, if so, how?

As the question is set in the ACT, the supplementary question is:

- How has the ACT Government used policy networks to facilitate the use of regulation for managing the ACT's water policy sector?

When the minority ACT Liberal Government proposed to privatise ACTEW in 1994, the Opposition and other parties in the Legislative Assembly and the general public opposed it (Donovan, 1999, p. 288-289). A consensus reached was that developing a robust regulatory framework would attain the objectives of those seeking privatisation while obviating the need for direct public control (Interview with J. Robertson, 19 September 2006, Canberra).

In response, several Acts of Parliament and regulatory codes of practice were developed. *The Utilities Act 2000*, the Consumer Protection Code, the Drinking Water Quality Code of Practice 2000 and Environmental Flow Guidelines are some of the legal instruments designed to manage water policy in the ACT.

While the ACT Government withdrew from day-to-day management of the water policy sector, it did not break up its water policy community. Crucial to this strategy was ensuring

that ACTEW was not sold to private interests but retained as a government- owned corporation. Regulation was instead used to attain the myriad of policy objectives that departments had pursued, as well as new ones.

Unlike earlier analyses of regulation, this study of the ACT's water sector regulatory policy takes an entire perspective of the water cycle using the policy network approach. Some accounts of regulation approach it from a legal-formal perspective (Bartlett et al. 1997). Earlier accounts mainly described the changing roles of regulators in light of privatisation (Gleick et al., 2002, Johnson and Rix, 1993). Other perspectives have concentrated on one particular regulatory instrument such as water pricing (Klein, 1996). Additional studies have concerned themselves largely with specific regulatory issues such as pollution control (Jordan, 2003) while other analysts have concentrated on federalism (Connell, 2007).

Theories of political science do not agree on what regulation ought to do. One of the more prevalent explanations for why governments ought to regulate water suggests that governments must do so to protect societies from externalities (Rees, 1998, Cowan, 1993). For rational choice advocates, decisions by consumers to use water are based on their attempts to 'maximise' utility (Shepsle, 2006). For Marxism and other structural theories, individual decisions matter little as structures predetermine the choices of actors (Howlett and Ramesh, 1998, p. 467, Dunleavy and O'Leary, 1987). On the other hand, formal-legal theory privileges laws and other formally recognised actors over informal, non-state actors (Rhodes, 2006b).

While political science theories do not grasp the complexity of water regulation, theories of regulation suggest that governments are unified, monolithic structures with resource advantages over other societal actors (Black, 2002a, Baldwin, 1997). For the economic theory of regulation, regulation is 'captured' by enterprising entities for their own ends (Stigler, 1971). The public interest theory of regulation conversely conceives of regulation as an instrument mobilised 'in the public interest' against 'market failures' (Cowan, 1993). Such an assertion ignores the difficulty of defining the concept of 'public interest' (Mitnick, 1980, p. 242-243). Conceptualised as delegation of powers by legislatures to executive

agents, as in principal-agent theory, regulation is perceived rather narrowly. The theory assumes a monopoly of expertise, formal power and authority, key material and other resources by regulatory agencies which is not always the case (Majone, 1996a, p. 40).

DURATION OF THE STUDY: 1994-2004

The water sector in Australia as elsewhere has changed rapidly. It is for this reason that the study focuses on the period 1994 until 2004. It must be noted, however, that from time to time in order to complete the story, events that occurred either before or after the decade under consideration will be included. In 1994 the Council of Australian Governments (COAG), a body composed of the prime minister and the premiers of all state and territory governments, instigated regulatory reforms in water policy. A decade later, in 2004, a new Intergovernmental National Water Initiative buttressed the COAG reforms. This study therefore looks at the consequences of these reforms in the ACT and how the Territory's water policy community mediated the changes.

Numerous policy changes occurred during the writing of this study. Among these changes is an announcement early in 2007 by the Coalition Prime Minister John Howard of a $10 billion dollar water policy initiative for the Murray-Darling Basin. The initiative would almost see the Commonwealth become a national policy-maker in water, taking over duties that have been considered the exclusive preserve of the states since federation. Another significant institutional change is the renaming of the Commonwealth Department of the Environment and Heritage as the Department of the Environment and Water Resources, indicating a new political significance for water. It is not yet clear how these initiatives will relate to older, existing policies. These two initiatives are beyond the scope of this study.

Water policy initiatives occurring after 2004 that are directly linked to the COAG water reforms will be analysed, as will historical events that explain why public policy-making grapples with the issues that it does. For example, the continuing drought that has led to the design of recent policy initiatives by the ACT Government will be assessed, as will the debate on drought policy.

A SUMMARY OF THE FRAMEWORK OF ANALYSIS: A POLICY NETWORK APPROACH TO REGULATION

This study takes a policy network approach to regulation. This approach is selected due to its capacity to generate insights for understanding policy-making in the ACT water sector, which occurs in multi-actor settings. Such policy-making has been continuous and stable through changing times, mainly because of the resource dependencies and exchanges of policy relevant resources by the institutions involved. By drawing initially on the idea of 'regulatory space' as developed by Hancher and Moran (1989), this study advances insights for how a policy network approach to regulation should appear. It emphasises that resource dependencies between institutions involved in water policy-making in the ACT bred policy stability during an era of great changes signified by environmental awareness, economic rationalism and independent regulation. Thereafter the study draws on the water regulation literature to point up peculiarities of regulation as a tool of government in the water domain.

An analysis of regulation in a networked environment begins with the premise that policy environments in Australia are fragmented (Davis et al 1993). Regulatory resources like formal-legal authority, finance, information, and other material resources are fragmented (Posner, 2002). This fragmentation leads to another cornerstone of the concept of regulatory space: interdependence. Where resources are fragmented, actors are interdependent in carrying out their policy intents. A network conception of regulation does not assume a clear distinction between 'public' and 'private' spaces. Network conceptions of regulation readily accept that private businesses can carry out public aims just as public institutions may enhance private aims.

The policy network approach is only one way to appraise regulation. Other perspectives on regulation include the idea that regulation is a way non-governmental actors can control governments (Scott, 2002). Similarly, regulation can be conceptualised as a way government departments regulate other government departments (Hood et al. 1999), or a way that actors come together to regulate their own conduct without government supervision (Furger, 1997). Regulation can also be studied from a perspective of how

international 'public service' bodies such as the World Trade Organisation influence the domestic regulatory policies of recipient countries (Kirkpatrick and Parker, 2005).

However, in this case study, there has been continuity and stability in policy-making even though the priorities of the ACT water sector changed. By emphasizing exchange relationships between actors, the policy network approach yields insights into policy-making in this particular policy sector that closely explain the management of changing circumstances in the ACT.

THE ACT CASE STUDY

The methodological approach engaged to answer the research questions is the case study. There are several reasons for employing the case study methodology for policy environments (Flyvbjerg, 2006, Eckstein, 1975, Yin, 2003). The major reasons in this instance relate to the intimate relationship between the subject of study and its context. Case studies are most valuable when the subject is not readily distinguishable from its context (Yin 2003, p. 13). The ACT water sector represents that of a typical political entity, while the ACT's character as a city-state simplifies the logistics of studying the regulation of water in an Australian context.

This study looks at multiple representations of the same case study, or what Yin refers to as a single case embedded design (Yin 2003, p. 43-45). The meaning of this is that while the ACT is the major setting, within this case study are several other case studies that assist in bringing out the complexities of the policy questions associated with regulating water in the ACT. These cases include economic regulation, social regulation, and the regulatory aspects of intergovernmental relations. For instance, social regulation includes water restrictions and drinking water quality regulation.

THE AUSTRALIAN CAPITAL TERRITORY: AN INTRODUCTION

The Australian Capital Territory is the seat of government for the Commonwealth of Australia, a federation of six states with two self-governing territories. The ACT is located entirely within New South Wales. Canberra was designated Australia's capital in 1909. The

words Canberra, the Australian Capital Territory and, more informally, the Nation's Capital, are often used interchangeably. In 1988 the Commonwealth granted self-government to the Territory. Institutions of national importance such as the National Parliament, Defence Headquarters, the Commonwealth bureaucracy, the National Museum of Australia, and the National War Memorial are all headquartered in Canberra.

One reason for selecting the ACT is that it is logistically convenient to study. While it's standing in the Australian political landscape makes it a significant entity, the smallness of its water policy sector makes it possible to study in its entirety. As a self-governing entity, the ACT has only one level of government, unlike other Australian jurisdictions, which have two: state and local. The ACT's Legislative Assembly has responsibilities discharged elsewhere by local councils as well as by state parliaments.

The combination of two levels of government assists the scope of the study while intergovernmental regulatory commitments ensure that the complexity associated with federalism is not lost. Although self-governing, the ACT is still influenced by multilevel governance through the presence of the Commonwealth's National Capital Authority, which is responsible for federal spaces within the ACT, such as the Parliamentary Triangle. Further, the Territory's commitments under the National Water Initiative, the Murray-Darling Basin Commission and its own responsibilities to run its own water sector ensure that the entire water cycle from taking water from rivers and dams into households and returning treated effluent back into rivers can be studied judiciously.

To add to the convenience of the study, two members of my supervisory panel; Professors Steve Dovers and Ian White both have a longstanding history of working within the ACT's water policy community in an advisory capacity. Such ties enabled easier access to key decision-makers than might have been the case with a different jurisdiction.

Its status as the largest inland city in Australia makes the ACT the largest population centre in the Murray-Darling Basin, Australia's largest river complex. The basin currently preoccupies the efforts of policy-makers trying to address the environmental, social and

economic problems associated with water and water dependent ecosystems. As Canberra discharges most of its used water into the Murrumbidgee River, which is part of the larger Murray-Darling system, it has to ensure that discharges will not harm the ecosystem. Further, Canberra is an upstream city relative to the southern states of Victoria and South Australia, and parts of New South Wales, and therefore has a responsibility to use the waters of the Murray-Darling with consideration for downstream interests.

Recent history also makes the ACT appropriate for this study. These events include the bushfires of 2003 and the drought that has affected Canberra and much of Australia since 2001. Before these events there was a radical change in the philosophy and structure of water provision in the ACT. Prior to 1988, the main objective of the ACT's water policy sector was providing cheap, healthy water to the ACT's residents through a single government department. However, since 1988 a new ethos and institutional structure has been introduced into the water policy sector. The approach is multifaceted and includes cost recovery, extensive public participation, ecological consciousness and intergovernmental management of water. Significant institutional and policy reform has occurred as a consequence, making the ACT an apt case of recent major regulatory change.

In 2004 the Territory embarked on an effort to change the *Utilities Act 2000*. The Act is the Territory's primary legislation concerning regulation of a corporatised water industry. The call for submissions from interested parties was answered by many organisations. These submissions were open and frank, providing candid assessments of the ACT's regulatory arrangements from those involved in or affected by the changes. They were published in their entirety on the ACT Treasury's web page, providing good quality material for those with interests in regulation of water in the ACT.

The ACT is still recovering from the January 2003 bushfires. The bushfires occurred in January 2003 and devastated most of the Territory's main water catchment, the Cotter Catchment, spoiling water quality (White et al. 2006). In response to the fires there were massive investments in infrastructure by ACTEW, the corporatised water provider (ACTEW, 2004b). These investments had a direct impact on economic regulation as

ACTEW had to apply for price increases to recover the costs. The documentation of the response to the bushfires also provided a rich source of material for those studying water management in the ACT.

The continuing drought has led to community consultations on how to augment the ACT's water supply. The ensuing deliberative process reflected some of the dynamics of policy-making in the ACT, as some actors with an interest in ACT water policy made arguments for and against construction of a new dam. In order to restrict unwarranted water use, the Government implemented a water restrictions scheme.

SOURCES OF EVIDENCE

To facilitate this research, this study used two major information sources: documentation (both official publications and archival material), and elite interviews.

OFFICIAL DOCUMENTS AND ARCHIVAL MATERIAL

The primary source of data was document research. Document research involved examining current documents and archival material. These documents include submissions for inquiries, annual reports, flyers, public announcements, official letters and speeches by leaders of water management organisations in the ACT. Some documents were not available on the public record. Where I needed a document for the study, I would make a note and request it upon meeting with an officer well placed to supply it. Such requests were normally granted. For example, on its website, ActewAGL posts only copies of current 'Drinking Water Quality Reports' and 'Sustainability Reports'[3]. Requests made to ActewAGL for back copies of these reports were granted.

The data gathering approach differed between the Independent Competition and Regulatory Commission (ICRC) and other agencies. In the case of the ICRC most documents were readily available on the website. Annual reports, transcripts of proceedings between

[3] Where a past report was no longer available in print, it was sourced from ActewAGL or ACTEW's electronic documents storage and made use of.

concerned parties and the economic regulator, performance reviews and related documents were all available online or contained in CD-ROMs, which were made available on request.

ELITE INTERVIEWS

A total of 25 interviews were conducted for the study between October 2005 and early 2007. These interviews were conducted with middle and top management in some of the organisations in the ACT's water sector, and two inter-jurisdictional regulators. The interviews were semi-structured and open-ended, assessing the participant's and their organisation's role with regard to the development and practices of the ACT water regulatory environment. Issues investigated included actors' roles pertaining to formulation, implementation, or monitoring and evaluation. Respondents were also questioned about their role and perceptions of regulatory accountability, coordination and interaction with non-ACT actors. Respondents were selected for their current or prior involvement in various aspects of water policy in the ACT. The list of respondents including the reasons they were selected is given as Appendix A in the 'References' section.

While awaiting clearance from the ANU's Ethics Committee to commence interviews, I conducted three pilot interviews with people knowledgeable about the ACT water policy sector. None of the pilot interviewees or informants objected to being taped, though most expressed the wish that nothing be attributable to them.

Initial contact with interviewees was made in one of two ways. In some instances, I made direct e-mail contact with potential respondents, and followed up by telephone. Direct email contact with potential informants was made when members of my supervisory panel suggested that the potential respondent would regard such direct contact favourably. In these e-mail contacts, I listed the objectives of the research and reasons why I thought the respondents' participation could enhance the research. At other times however, I requested my supervisors to make initial contact on my behalf. After my supervisors made contact, I followed up by telephone. Whether I took the approach of making telephone calls or e-mail contact was determined through advice by members of my supervisory panel, who usually

would give appropriate advise depending on whether they knew the officer I wished to interview.

LINKING THEMES

The primary theme in this study is that the transformation of water policy in the ACT has been stable because of the capacity of the policy community in charge to stabilise it partly by enlarging itself by accepting new actors such as the ICRC. The policy community mediated the policy change and thus absorbed the shocks that often destabilise administration. There are other reasons why policy change was stable. Water was critical to the selection of Canberra as a capital city (Donovan 1998). Furthermore, it seems that in the past, the Commonwealth spared no expense to endow the ACT with high quality water infrastructure. Added to that, the ACT has minimal irrigated agricultural activity which is an advantage; agricultural activity consumes on average more than three quarters of water throughout the world (Gleick, 1993).

The above two reasons notwithstanding, the policy stability is mainly attributable to the primacy of a policy community in the ACT that was left intact when government changed its primary mode of water delivery from government agency to regulation. The reason for ensuring this stability includes policy communities, power dependence, self-regulation, regulatory space and trust.

POLICY COMMUNITIES

A recurring theme in the study is the idea of policy networks, and specifically policy communities in the management of policy change. Policy networks are formal and informal groups of institutions bound together by their need to share resources. Policy is made during these interactions (Rhodes, 2006a, Rhodes, undated). Actors carry out policies in an interdependent manner and policy emerges from these interactions (Rhodes, undated). Policy communities are networks characterised by their close-knit character, and their interest in maintaining policy continuity (Marsh and Rhodes 1992, cited in (Fenna, 2004, p. 161). While ACTEW is unquestionably predominant compared with other organisations in

the ACT water policy sector, it still requires the cooperation of other actors to realise its goals. Regulators, on the other hand, need ACTEW to be successful to ensuring that the public's trust in public institutions is maintained. Policy communities set the policy agenda, select policy instruments and mediate the direction of policy change.

POWER DEPENDENCE

The concept of power dependence explains the nature of exchanges that go on between institutions involved in policy-making. At the core of this concept is the idea that organisations lacking in resources required to carry out policy-making end up exchanging resources in order to do so. Yet as they exchange resources, the dominant set of actors still retains discretionary powers, which determine what types and magnitude of resources are needed. Furthermore, the networks, in order to make progress on their objectives learn to set some rules that govern their exchanges, rules of which trust is the main one (trust is fully explained further down in this section).

POLICY STABILITY

Policy stability refers to the constancy of policy initiatives and the maintenance of broad agreement on objectives within a policy community and by that community in dealing with outsiders. Despite water policy having undergone numerous changes, imposed internally and by federalism, policy-making has remained relatively intact and produced arguably good outcomes. While new institutions were formed, regulatory practices have remained relatively similar. Furthermore, policy objectives and strategies have remained constant, in contrast to examples of similar changes in other countries.

SELF-REGULATION

Self-regulation is another contributing factor to the stability of water policy in the ACT. While legislation and regulatory codes of practice imply a big role for regulators, most regulators leave most of these activities to ACTEW. Such control by a firm or group of firms over the behaviour of its individuals is the essence of self-regulation (Baldwin and Cave, 1999, p. 125-137). To ensure accountability ACTEW is required to report on the

outcomes of its activities. The trust that exists in the policy community is such that at times when regulators require explanation, often a quick phone call to ACTEW suffices[4]. Self-regulation is closely related to the concept of trust; an implicit confidence that regulators have in ACTEW to carry out its duties with minimal political and financial cost.

Self-regulation in the ACT still occurs even under economic regulation where an economic regulator is ostensibly in charge of regulating ACTEW. The economic regulator has the task of balancing ACTEW's profit motives and the need to reinvest in the infrastructure with fairness to the community. On the other hand, the Treasury needs money from ACTEW's profits. The status of the Treasurer and the Chief Minister as shareholders in ACTEW could potentially lead to conflict of interest in water tariff setting. This has not happened in the decade or so since an independent price regulator took the role of setting ACTEW's water tariffs. No one so far has openly questioned the impartiality of the ICRC and its senior commissioner has enjoyed a long tenure. Nor is there any public record of the regulator complaining of ministerial interference with the job.

Two strategies are employed to ensure that the economic regulatory sphere is free of controversies while ACTEW meets its financial objectives. The first strategy ensures that there is no public outcry about water prices. These include ensuring that no household supply is cut because of lack of payment, that the business sector cross-subsidises the residential sector, and diagnosing likely problem spots within the policy community before they become intractable. The second group of strategies are targeted at improving ACTEW's profitability. Low standards of service, ensuring that debtors are identified and assisted by government, and also ensuring an inclusive tariff setting process, arguably attain this aim.

TRUST

Some critics such as Susan Shapiro (1987) disapprove of the shortcomings of 'impersonal' trust, which can lead to corporate irresponsibility. On the other hand, Braithwaite and Makkai (1993) have argued that trust can lead to cheaper, effective regulatory outcomes. In

[4] The subject of trust is discussed next.

the ACT, the regulators knowledge of ACTEW's capacity has engendered trust. Repeated interactions coupled with deep knowledge of the abilities of each other and shared interests have resulted in the building of trust between actors. Yet, as Shapiro (1987) cautions, trust has its negatives. Trust can breed negligence in whom it is vested.

CHAPTER OVERVIEW AND ARGUMENTS

This section outlines the chapter structure of this thesis and how the chapters relate to the thesis and its linking themes.

Chapter 2: Water regulatory policy-making in Australia: the case for network theory

This chapter introduces the subject of regulation, the trajectories of water policy-making in Australia and finally makes a case for why a policy network approach to regulation best explains policy-making in the ACT's water sector.

Chapter 3: The institutions of Australian water policy-making: from bureaucracies to networks

This chapter demonstrates the change in mode of government in water policy, from the closed professional networks led by engineers to the open policy networks now in operation. Both the changes necessitated by this and their consequences are outlined.

Chapter 4: The growth of water regulation in Australia

While chapter 3 focuses on water policy formulation, this chapter assesses implementation of policy through regulation. It gives an overview of the water policy problems that face Australian society, the tools or policy instruments used to address the problems, and the major institutions involved in such regulation.

Chapter 5: The legislative and institutional framework of water governance in the ACT

The purpose of this chapter is fourfold. It introduces the actors involved in the management of water in the ACT; gives a history of the development of the ACT water policy

community; a history of ACTEW; and outlines the current political economy of water policy in the ACT.

Chapter 6: Economic regulation in the ACT: managing a contested regulatory space
This chapter assesses how economic regulation is used in the ACT. Compared to social regulation, economic regulation is relatively adversarial. Yet ACTEW attains its profit objectives despite this. ACTEW, aided by legislation, regulatory codes and other methods adopts tactics that perpetuate its advantages to gain profitability. These include (arguably) charging monopoly prices for some activities and using standards that are below world's best practice.

Chapter 7: Social regulation: managing regulatory space by trust and self regulation
The primary finding in this chapter is that social regulation of water is primarily self-regulatory, and operates by consensus building. Regulators emphasise their trust in ACTEW's capacity to achieve regulatory objectives. In turn, ACTEW carries many of the duties meant to be executed by regulators, mostly ACT Government departments. The trust that exists is deepened through several strategies including regular meetings between ACTEW and regulators, less emphasis on penalties and ensuring that ACTEW's infrastructure for water delivery is adequate. The existing regulatory arrangements have, however, left regulators without demonstrable capacity to carry out their own monitoring of ACTEW's activities.

Chapter 8: Federalism and water regulation in the ACT
This chapter examines the interaction between federally inspired regulation and the ACT's water policy. The ACT uses various strategies including conducting its own assessments of the tools being handed down from the Commonwealth, negotiations and turning some seemingly intractable policy problems into engineering solutions to safeguard its interests from intergovernmental policy initiatives.

Chapter 9: Conclusions: Explaining the ACT 'anomaly'

This chapter summarises the thesis, discusses the main themes, and identifies the strengths and weaknesses of the policy network approach to regulation.

2 WATER REGULATORY POLICY-MAKING IN AUSTRALIA: THE CASE FOR NETWORK THEORY

This study assesses the role of policy networks in stabilising regulatory policy-making in water. In the ACT there was a policy community that ran the water policy sector for many years after foundation of the city of Canberra. This policy community began in an era when government departments or authorities ran water policy almost exclusively, resulting in fostering of familiarity and trust. Such trust led to a stable policy environment that meant that even when water policy encountered several disruptive influences resulting from intergovernmental relations, environmental politics and economic rationalism, policy continued in a stable fashion. The newly structured water sector relied more on interdependencies between actors in the policy community to ensure policy continuity and stability.

This chapter introduces the policy networks framework as a way of understanding policy-making in Australia. The network approach is used in this study for the insights that can be drawn from it to explain policy-making in multi-actor settings. Introducing policy networks analysis is important for two major reasons:

- The network approach to study of policy-making about water is relatively new in Australia;

- The thesis introduces the network approach to studying policy-making about water in Australia.

The chapter proceeds to review four distinct types of literature relevant to this thesis; the literature on regulation; water policy-making in Australia; public policy-making in Australia and finally the literature on policy networks.

The 'regulation' literature both introduces the subject of regulation and reviews the major approaches to the subject. A review of the water policy-making literature in Australia that

assesses the major approaches to the subject is carried out in the section following that on regulation. The literature notes that current accounts of water policy-making are historical-descriptive, formal legal and normative. Thereafter the chapter provides a brief account of the general public policy-making literature in Australia. To provide an overview of policy-making in Australia, it assesses recent texts on the subject namely, Wanna (2003), Davis et al. (1993) and Fenna (1994, 2004). Wanna's 2003 essay shows that policy-making literature in Australia gives only cursory attention to policy network analysis.

Accounts of policy-making in Australia have largely neglected the study of policy networks. There have been no studies of the utility and effects of policy networks in Australian water policy unlike in other countries such as Britain (Maloney and Richardson, 1995, Maloney and Richardson, 1994), the Netherlands (Bressers et al., 1994), the United States of America (Heilman et al., 1994) or Germany (Rüdig and Kraemer, 1994).

Such neglect of policy network analysis to water management is concerning, in the face of indicators that contemporary public policy in general and water policy in particular is now continually shared between multiple actors. The study therefore seeks to make a contribution to research on policy-making in Australia and policy-making regarding water in particular.

WHY STUDY NETWORKS AT ALL?

Braithwaite (2006) stated that policy networks have become important for modern day governance because they are widespread in government. Some of the reasons for the importance of policy networks include that:

- They limit participation in the policy process;
- They define the roles of actors;
- They decide which issues will be included and excluded from the agenda;
- Through the rules of the game, they shape the behaviour of actors;

- They privilege certain interests, not only by according them access but also by favouring their preferred policy outcomes;
- They substitute private government for public accountability (Rhodes, 1997).

Networks, therefore, matter in many ways. Knowledge, power and finance are divided between multiplicities of actors. Governments now share their power with other actors, lessening their control over policy-making, thus the assertion that modern states have 'hollowed out' (Rhodes, 1994). While hollowing out has been questioned elsewhere (Holliday, 2000), governments have indeed lost some of their decision-making power or share some of those functions with private businesses, regional, economic and political organisations and councils (Koppenjan and Klijn, 2004, chapter 1).

REGULATION

The study of tools of government has grown in prominence in recent years (Hood, 1986, Salamon, 2002a). Such tools of government have transformed the way governments implement policies. Management of public issues has changed from governments issuing commands to be followed by other actors to managing networks of diverse policy actors.

One type of tool of government, regulation, has grown so much in prominence in recent years that some claim that we live in a regulatory state (Majone, 1999, Braithwaite, 2006). Regulation takes prominence in the modern state over and above macroeconomic stabilisation, income redistribution or the use of force, which are key characteristics of the Keynesian state (Majone, 1997, p. 139-140).

Defining regulation, a contestable concept, is difficult (Levi-Faur and Jordana, 2004, p. 2-5). For instance, Dubnick and Gielson cited in (Reagan 1984) describe it as 'a conceptual quagmire'. (Baldwin et al. 1997 cited in Levi-Faur and Jordana 2004) suggest that regulation can be viewed in three ways; first, as a specific form of governance; secondly, as a form of governance in a general sense; and thirdly, as all forms of social control.

The first definition refers to the thinking that regulation is a set of rules administered, monitored and enforced by a government agency. As governance in a general sense, regulation is used to refer to all efforts by government to steer the economy. Regulation in its broadest sense is used to define all forms of social control (Levi-Faur and Jordana, 2004, p. 3-4). Furthermore, there are many sources of regulation (Braithwaite and Drahos, 2000).

Regulation has several, often conflicting, meanings. One way of transcending the definitional quandary is the view that regulation is a tool that governments have increasingly come to rely on for dealing with public problems. In this sense, regulation has several institutionalised characteristics that define it (Salamon, 2002b). As a tool of government action, a further clarification can be made between social regulation and economic regulation. Economic regulation is:

> A specialised bureaucratic process that combines aspects of both courts and legislatures to control prices, outputs, and or the entry/exit of firms in an industry (Salamon, 2002b, p. 118).

Social regulation, on the other hand, refers to regulation that is:

> Aimed at restricting behaviours that directly threaten public health, safety, welfare or well-being. These include environmental pollution, unsafe working environments, unhealthy living conditions, and social exclusion (May, 2002a, p. 157).

THE BASIC MECHANICS OF REGULATION

The distinction between economic and social regulation is continually blurred (May, 2002a). Such contrasts often fail to hold because types of regulation often use the same mechanisms. For instance, pollution control, which is traditionally a concern of social regulation, relies mostly on setting pollution levels, which are not to be exceeded by firms, thus using rules and standards. In recent years, however, pollution control increasingly utilises tradable permits or tax instruments, both of which are economic instruments (Gunningham and Grabosky, 1998). Thus, while the differences between economic and

social regulation have become smaller, the distinction does help in allowing for a clear-cut analysis of the subject matter.

ECONOMIC REGULATION

Economic regulation operates by governing market conduct. Economic regulation has several dimensions that include price control, competition control that entails entry and exit into a market, and production controls. Price controls are used when regulation is used as a substitute for competition. The aim of price control is to prevent abuse of monopoly while enabling corporations to earn profits on their investments, and facilitate competition among firms operating in a similar market. Controlling prices can also be used to facilitate 'universal service' to ensure that all classes of consumers have some access to the regulated service (such as potable water for household use).

Control of entry of firms into an economic activity can be either through licensing new entrants, stipulating the quality of the goods or services the entrant has to produce, or ensuring that new entrants fully understand their licence commitments (or a combination of all these three). Entry control through qualification requires new entrants to demonstrate that they qualify to participate in the venture for which they are applying in terms of having adequate financial, technical and human resources. Another criterion used by regulators is ensuring that that there is need for a service alternative. Normally applicants have to demonstrate that there are some potential customers who are not served by existing market players.

Production control is another aspect of economic regulation. Controlling production can take either one of two approaches, controlling outputs or specifying the product or service. Regulation through price control may act as a disincentive to regulated entities to produce large quantities. Because of that problem, regulators can specify the quantities they require. Alternatively, regulators can oblige entities to serve sections of society even if to do so could be uneconomic, to cover social groups or geographical locations to which providing infrastructure could impose high costs on the regulated entities.

Imposing standards is another way in which outputs can be regulated. This technique is used mostly on network industries, where products from different manufacturers must have compatibility in order for consumers to be able to use a product widely. Thus, buyers of a kettle must be able to plug the kettle into a socket that they can also use for their iron. Standardising the design of the socket is essential to allow the consumer maximum use of their products (Salamon, 2002b, p. 117-155).

SOCIAL REGULATION

Social regulation is regarded as that type of regulation that is about protection of societal values through control of behaviours or activities that are regarded as harmful to society. Social regulation is rule-based regulation (Ogus, 2001). In social regulation the challenges for regulators are to set rules that stipulate the minimum form of acceptable behaviour and then, in some instances, simplify that by stipulating standards of behaviour that quantify the rules to guide enforcement of such behaviours. The basic mechanisms of this type of regulation entail creation of rules, setting of standards to be observed and induction of compliance (May, 2002b).

Rule-making

Rules are important to regulation in that they point to what is to be expected from the regulated entities. That they are written down is what differentiates the rules from norms of social interaction.

Standards

Because of the complexity of rules, standards simplify that complexity. Three common types of standards generally exist: design or specification standards; performance standards; and reference standards;

- Design standards specify the use of materials or means that are to be used to attain compliance;
- Performance standards specify the expected levels of performance. An example of such standards is the amount of weight that can be carried by a vehicle; and

- Reference standards are standards designed by private standard-setting organisations to guide manufacturers and service providers (May, 2002b, p. 164-171).

Penalties or rewards

The main goal of social regulation is to obtain compliance with the rules or standards set for the regulated activity. The use of penalties, or rewards, or a mixture of both, can be used to obtain compliance. As advocated by the formulation of 'responsive regulation' and 'smart regulation', the mixture of rewards and penalties is advocated as the best way to ensure compliance in the context of the fragmentation of regulatory resources between regulators and those they regulate (Ayres and Braithwaite, 1992, Gunningham and Grabosky, 1998).

At the core of using penalties is the thought that the regulated entities would not willingly comply without coercion or compulsion. It is very important to design penalties that would sufficiently deter wrongdoing while not removing the incentive by transgressors to engage in productive activity. Beyond a certain level, control can become too expensive to society because of costs associated with monitoring and costs incurred through disallowing activities that would otherwise benefit society at a certain level of pollution (Gunningham and Grabosky, 1998).

The range of activities included in social regulation is extensive. These activities include management of morality such as control of pornography (Daynes, 1998) or abortion (Strickland, 1998). Sometimes social regulation is used to regulate the safety of societies such as gun control (Spitzer, 1998). Most social regulation now tends to be aimed at guarding against the ill effects of business activity on societies. Referred to as the 'new' social regulation, this includes the management of advertising standards (Harker, 1996), environmental regulation (Breyer, 1992), and consumer protection.

REGULATORY INSTITUTIONS

Regulation requires the presence of an agency whose objective is to ensure compliance with the regulation. Several types of regulatory institution exist. These include parliaments, local councils, courts of law, tribunals, state or Commonwealth authorities and local authorities (Baldwin and Cave, 1999, p. 63). For either economic or social regulation, most specialist regulators include self-regulators, regulatory commissions and government departments (Ogus, 2002).

Regulation by government department

One form of regulatory design is to assign the duty of regulating to government departments and agencies. An example is regulation of air, noise and water pollution in the United States of America, which is conducted by the United States Environmental Protection Agency, USEPA. The EPA sets the regulatory standards and enforces and monitors their implementation by firms (Breyer, 1992).

Regulation by commission

Independent regulation or regulation by commission is an arrangement where government sets up a regulatory agency that is independent of government in its decision-making. Typically government imposes few control impediments on the institution aside from appointing members of the Commission and approving budgets, all which are major mechanisms of legislative control of the regulatory agencies. In making decisions or determinations the Commission is independent of government intervention or interference. These types of regulatory institutions rely on the Government setting the rules on which they operate and then leaving them to operate independently (Ogus, 2001).

Self-regulation

Self-regulation is said to exist when a group of firms, individuals, associations or clubs exercise control over their members (Baldwin and Cave, 1999, p. 125), or a corporation regulates its own business conduct (Parker, 2002). Self-regulation attempts to address some of the problems associated with command and control like expertise, information and finance as found in command and control.

Self-regulation is also said to offer the advantage that self regulatory entities command more knowledge or expertise of their business and are therefore better placed to regulate than appointed outsiders (Sinclair, 1997, Baldwin, 1997). Self-regulators have easy access to information. It is this information that is needed to formulate standards, making the process cheaper and more efficient. Added to this, self-regulation imposes very few economic costs on public finances since it is private actors who bear the costs.

A criticism of self-regulation is that it does not necessarily serve the public interest and may even fail to do so. The argument is that private businesses cannot be expected to police their own infractions of the law robustly. It is an excuse by the Government for not doing its job. A further criticism is that self-regulation lacks visibility, credibility, accountability, and compulsory application to all. This means there is a likelihood of underdevelopment of rigorous standards, growth of costs and lack of availability of a range of sanctions (Baldwin and Cave, 1999).

Top managers, to evade responsibility, can also exploit self-regulation. Self-regulation can become token regulation, where corporate entities affect compliance while not complying at all. Further, top managers can deflect blame to junior staff since self-regulation places the liability of compliance on employees. Corporate bodies can also indulge in acts of legal brinkmanship, playing up their employees as scapegoats and thus shifting responsibility and accountability from management (Parker, 2002, p. 145, Gunningham and Grabosky, 1998, p 52-54).

THEORIES OF REGULATION

Theories of regulation serve several purposes, including explaining the development or decline of regulation and prescriptions of how regulation should be organised. At times they combine the aforementioned functions (Baldwin and Cave, 1999, p. 18). Some of the better-known theories of regulation include public interest theory and economic theory of regulation. A brief outline of the positions offered in each is provided below.

PUBLIC INTEREST THEORY

The basic premise of the public interest theory is that regulation is pursued in the public interest (Mitnick, 1980, p. 19, Baldwin, 1997). Government intervention is seen as an attempt to redress the imbalances that the market may fail to address. Natural monopoly is a famous form of market failure. Natural monopolies occur when one firm can more efficiently carry out production of a good or service (Gelhorn and Pierce, 1987, p. 44) than could more than one firm. Since monopolists may produce substandard output while charging high prices, consumers with no alternatives will thereby be overcharged. Externalities are another form of market failure. Externalities occur when parties external to a transaction are affected by outcomes of the transaction (Reagan, 1987, p. 38), calling for government intervention to redress such instances (Gelhorn and Pierce, 1987).

The production of public goods is another justification for public regulation. Public goods are neither rival nor excludable in consumption. A rival good is one where consumption by one person reduces availability to another. Non-excludability means consumption by one person cannot realistically stop another from using the good or service. Defence and public safety are often cited as pure public goods. Since it is not easy to exclude those who do not pay for such goods, government intervention is necessary to make such goods available for all (Baldwin and Cave, 1999, p. 13-14). Government intervention in the market is also justified on grounds of information asymmetry; information essential to decision-making may be inadequate or, or if available, costly to produce.

ECONOMIC THEORY OF REGULATION

In contrast to the public interest theory, the economic theory of regulation posits that governments do not deploy regulation for the good of society. Regulation is desired by businesses so they can advance their own interests. Developed by George Stigler (1971), this theory further points out that politicians give regulators the right to dispose of that monopoly. Such a responsibility in turn gives the regulated industry an incentive to capture the regulator so that regulation can work to the monopolists' advantage (Baldwin and Cave, 1999, p.30). Examples used in support of this include the thinking that price and entry

regulation of 'perfectly competitive' markets like air transportation and long distance telecommunications is deployed so incumbent operators can be shielded from competition (Majone, 1996a, p. 30). In Stigler's conception, the most organised interests in society stand to benefit the most from regulation.

Capture and command

The major impact of the private interest theories of regulation is the contribution of the 'capture' concept. Capture is said to occur because of the 'revolving door'. Regulatory staff in the hope of future employment with the corporation, implicitly as well as explicitly, favours regulated entities. Capture is different from corruption because there is no inducement from regulated entities; perceptions of job prospects by regulatory staff make them act in the interests of the regulated (Grabosky and Braithwaite, 1986, pp. 198-199).

BEYOND CAPTURE AND COMMAND: CHALLENGES TO CONVENTIONAL CONCEPTIONS OF REGULATION

Theories of regulation are based on the conception of regulation as command and control. The theories assume clarity in the roles of the regulator and the regulated. Such clarity is based on a hierarchical arrangement with regulators wielding power over regulated entities. Command and control regulation has its own advantages including the capacity to bring regulation to bear immediately on an infraction of rules. Similarly, when firms seek to enter a market, such entry can be screened accordingly and those unfit prevented from entering. Similarly, command and control regulation is desirable because it can prohibit certain illegal or morally repugnant activities (Tatalovich and Daynes, 1998). Its transparency means that command and control regulation faces less challenge on legitimacy grounds because actions are more visible to the taxpaying public (Baldwin, 1997, p. 66).

Since command and control regulation puts the onus on the firm to collect information necessary for monitoring and compliance, it can be expensive for the firm. Command and control thus often leads to firms meeting the minimum regulatory standards required, and

would often give the regulated entities an incentive to engage in 'creative compliance'; activities that give the appearance but not necessarily the reality of compliance.

Command and control further fails to recognise the complexity of society and the fragmentation of resources required to ensure that regulation works. Information, formal-legal authority, capital, and material resources required for policy are fragmented (Posner, 2002, p. 525-529). Such fragmentation creates problems for managing policies. Modern states have shifted from government to governance, meaning that:

> No single actor can hope to dominate the regulatory process unilaterally as all actors can be severely restricted in reaching their own objectives not just by limitations in their own knowledge but by the autonomy of others (Kooiman, 1993, cited in (Black, 2002a).

Fragmentation of resources makes regulation subject to various interpretations by those involved in a regulated activity. A regulator can no longer unilaterally declare regulated entities in breach and thereby impose sanctions. Such action can be resisted by regulated entities through court action, for example. Modern day regulatory practice shows that regulators instead, continually teach, cajole and educate the regulated entities to comply. Litigation is used only as a measure of last resort (Grabosky and Braithwaite, 1986, p. 1).

'Regulatory space' is a concept used increasingly to explain the complexity of regulation. According to Hancher and Moran (1989), the conduct of regulation in a fragmented policy environment occurs in a regulatory space. At the centre of such relationships are resource dependencies:

> Economic regulation of markets under advanced capitalism can thus be portrayed as an activity shaped by the interdependence of powerful organisations that share major public characteristics. In the economic sphere no dividing line can be drawn between organisations of a private nature and those entitled to the exclusive use of public authority (Hancher and Moran, 1989, p. 275).

Interdependence of policy actors necessitates the questioning of the idea of 'capture' because it suggests that there is a sphere of public authority which ought to be inviolate from private influence (Hancher and Moran, 1989, p. 274). 'Capture' stands questioned in

the sense that hierarchies give way to networks of policy actors in a regulatory space. While hierarchies still exist inside the various organisations, attention is drawn to the fact that it is more bargaining, interdependencies and exchanges of resources that characterise regulation. For this reason, regulation becomes 'the market of assurances' as actors constantly bargain and accommodate each other's concerns (Shearing, 1993b).

De-emphasising command and control means that trust is the major relationship builder (Shearing, 1993b). Trust may be engendered between regulators and customers, customers and corporations, and regulators and corporations. Trust, however, is not without difficulties. As pointed out by Shapiro (1990, cited in Braithwaite and Makkai 1993, p.1), white-collar crime represents the betrayal of trust that society places on corporate executives, since such trust may 'institutionalise conflict between fidelity to principal interest and agency self-interest'. Shapiro's perspective is shared by others who caution that regulators may create appearances of trust without necessarily ensuring that such trust is deserved by those in whom it is vested (Sunstein, 1990, p. 60). While the reluctance to place trust in corporations has some validity, there are indications that trust does nurture compliance. Such a view holds that people want to comply with regulation because they believe it to be right, and have internalised the conception that it is correct to do the right thing(Braithwaite and Makkai, 1993).

RESPONSIVE REGULATION

Responsive regulation aims at 'transcending the intellectual stalemate between those who favour strong state regulation of business and those who advocate deregulation' (Ayres and Braithwaite, 1992, p. 1). In this conception, regulation is shared between private and public, state and local, national and international actors. The theory places emphasis on the 'residual role for law at the apex of pyramids both of regulatory enforcement and regulatory technique' (Scott, 2003, p. 12). Responsive regulation is centrally concerned with:

> Designing regulatory institutions and processes which stimulate and respond to the regulatory capacities which already exist within regulated firms, attempting to keep regulatory intervention to the minimum level necessary to secure the desired

> outcomes, while retaining the capacity to intervene more (in terms of more stringent enforcement or the introduction of a more interventionist regime) (Scott, 2004, p. 157).

Responsive regulation adopts a gradualist approach to enforcement. Most regulation occurs by persuasion, education and advice to the regulated entities rather than adversarial legalism. Responsive regulation uses an enforcement pyramid of regulatory tools, from the least intrusive and punitive to the most punitive. At the base of any pyramid, where most regulation occurs, is the use of public information or education. Where cooperation is not forthcoming, regulators can raise the level of compulsion with more coercive regulatory tools, the ultimate one of which is licence revocation (Ayres and Braithwaite, 1992, p. 34-36).

WATER POLICY IN AUSTRALIA

Arguably the most common literature on Australian water policy-making is the normative politics literature, which explains why governments ought to intervene in a policy area. The other literature is historical-descriptive, the central feature of which is an outline of historical details about development of water infrastructure. This literature describes the history of individual Australian states and their water infrastructure development efforts. The formal legal literature is used to describe mostly government institutions involved in water policy-making.

FORMAL-LEGAL LITERATURE

The formal-legal literature tends to be common among academic lawyers. It focuses on governmental actors in water policy almost to the exclusion of other actors. Descriptions of constitutional arrangements in water management tend to dominate. This literature is largely based on section 100 of the Australian Constitution, which states that:

> The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a state or of the residents therein to the reasonable use of waters of rivers for conservation or irrigation

Like Marxism and historical-descriptive perspectives on water policy-making, formal-legal accounts are part of what are known as 'old institutionalisms', theories of policy-making based on description of the role of state institutions in policy. Formal-legalism is the study of political institutions in their formal, constitutionally prescribed roles, 'the study of public laws that concern governmental organisations' (Eckstein, 1972, cited in Rhodes 2006, p. 94).

Development of water law in Australia is credited to Alfred Deakin. He studied the subject in the United States of America and returned to Victoria where he developed Victoria's *Irrigation Act 1886* (Pigram 1986, p. 56). Previously Australian water law had mostly relied on English common law to define the rights of water users. Water law empowered government departments to run water management. Access to water ownership was based on the riparian doctrine, as in the United Kingdom, the origin of most of these laws[5].

Formal-legal accounts on water policy-making tend to perceive state institutions as central actors in political affairs almost to the total exclusion of non-state actors. While ignoring the role of non-state actors in water management, formal-legal perspectives on water policy-making give a good indicator of who is involved in water management. Formal-legal theories are therefore a good point of departure for analysing policy-making in water.

A commonly held belief is that since water administration is based on section 100 of Australia's Constitution, the Commonwealth is subservient to the role of the states in water policy-making (Fisher, 2000, Connell, 2003)[6]. As a consequence of interpreting section

[5] This is a legal theory that gives the owners of lands close to bodies of water the right to 'responsible use' of that water and the duty to protect the same water bodies.

[6] For instance, A.E. Telling in his account of water authorities in the United Kingdom describes the national structure of the water policy. To him, policy in the water sector is mainly a function of the ten government water authorities. 'Authority' is seen as appropriate in this case because it stems from the Government appointment and government ministries. Thus he is able to distinguish between national, regional and local authorities. At national level, he states, citing the *Water Act 1973* for instance that

> it shall be the duty of the Secretary Of State and the Minister Of Agriculture, Fisheries And Food, (in this Act referred to as Minister, to promote jointly a national policy for water in England and Wales and so to discharge their functions under subsections(2) and (3) below to secure the effective

100, responsibility to manage water resources falls squarely on the states. Section 51 of the Constitution, however, empowers the Commonwealth to act in water policy through powers concerning trade and commerce, external affairs and corporations formed within the limits of the Commonwealth (Fisher, 2000).

There have recently been indicators that formal-legal accounts are beginning to relax some of the strict state-centric perspectives. For example, Douglas Fisher's book, *Water Law,* outlines international obligations, native land issues, the rights of access of individual members of the public and state and local law as all contributing to water law in Australia (Fisher 2000, p. 9).

HISTORICAL-DESCRIPTIVE LITERATURE

Another category of Australian water policy-making literature can be described as historical-descriptive. There are several genres of this particular literature. They include the history of water resources management boards in Australia, the 'environmental history' literature, and state water development literature.

The environmental history literature

Definitions of environmental history are 'embarrassingly wide'. The term can also be used to describe events of life on earth before human existence (Dovers, 1994). Dovers identified three epochs in Australian environmental history. These are the prehistoric era when the earth was formed, the age of the beginning of human settlement, when Aboriginal people arrived on the continent, fifty or so thousand years ago, and the era of European settlement, commencing in 1788, which is the more documented period of the three (Dovers, 1994, p. 2).

This literature is important in that it describes events and actions that led to problems modern societies face concerning their natural environment (Hussey and Dovers, 2006). The literature does not always concern itself particularly with water policy, which is

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execution of that policy by the bodies responsible for the matters mentioned in those subsections TELLING, A. E. (1974) *The water Authorities,* London, Butterworths.

understandable because of the wide-ranging subjects that make up 'the environment'. There are many historical accounts on water policy-making. Joe Powell particularly dominates this literature. His writings include the chapter '*Water Management*' in a 1976 book (Powell, 1976) in which he discusses the history of Victorian water policy. In a chapter 'Snakes and Cannons: Water Management and the Geographical Imagination in Australia' in a book aptly named *Environmental History and Policy: Still Settling in Australia*, Powell offers an insightful history of water development in Australia (Powell, 2000). In the same book, 'Oral History, Ecological Knowledge and River Management', gives an innovative account based on the oral historical approach to the challenges of management of the Murray-Darling Basin (Roberts and Sainty, 2000).

The history of water boards

The literature on the history of water boards in Australia provides another perspective on water policy-making in the country. Water and sewerage services in Australia had, until the 1980s been provided by boards of works, commissions or government departments, rather than corporatised bodies as is now common. For instance, in Sydney the Metropolitan Water, Sewerage and Drainage Board did that job while the Hunter District Water Board supplied Newcastle and surrounding areas. In Canberra, the Water Supply Branch of the Department of Works supplied water to the town (Matthews, 1967, p. 248-49). The prominence of water boards in Australian water policy history is thus unsurprising.

A typical example in this category is the account by C.J. Lloyd and others on the history of the Hunter District Water Board, *For the Public Health* (Lloyd et al., 1992). *For the Public Health* traced the historical development of the Hunter Valley Water Board and made the point that the major objective of the board had been provision of healthy water supplies in the Hunter Valley area. *For the Public Health* further demonstrated how local farming interests necessitated creation of a statutory organisation empowered both politically and financially for its tasks. In this manner it had similarities with an early history of the Melbourne Water Board, *The Water Supply Systems of the Melbourne Metropolitan Board of Works* (Gibbs, 1915). The board existed to deliver water and wastewater services to

residents of Melbourne. Its success was attributed mainly to the strict focus on those two functions (Eggleston, 1932, p. 211).

Peter Donovan's *Lights! Water! ACTEW!* traced development of ACTEW Corporation from the early days of Canberra until around 1998. In ACTEW's case, the development of ACTEW was mainly to supply water to an urban centre and not primarily irrigation interests, as in the other two cases above (Donovan, 1999).

Each of the accounts demonstrated the development challenges of the region in which the water board was founded. The development imperatives led to massive investments in infrastructure.

State-wide water histories

The historical enunciations of water policy-making also apply at state level. Unlike the history of water boards, the state-wide literatures outline the challenges faced by various states in developing water infrastructures for irrigation and human settlement. For example, (Laurie et al. 1979 cited in Smith 2003) described the development of dams in New South Wales. A perspective on water development history in Victoria is given by Powell (1989) who also studied Western Australia (Powell, 1998) respectively. The general flavour of this literature shows the urge of decision-makers to bend nature to the will of pioneering Australians. A central theme of these literatures is justification of government interventions for such undertakings.

THE NORMATIVE LITERATURE OF GOVERNMENT INTERVENTION IN WATER POLICY

Interventionist approaches to water policy attempt to answer the question, why do governments need to take charge of water policy? Reasons given for interventions by governments in Australia are many though few are unique to Australia. They can be found in other jurisdictions and continue to be justifications for government interventions in water. In the United Kingdom, such reasons offered for government interventions were

referred to as the need to manage 'several market failures' (Cowan, 1993). In African countries several challenges for water management necessitating government intervention include the need to finance large projects, take care of health and environmental challenges, and develop institutions (Sharma et al. 1996).

Government interventions are further justified on the basis that the size of water investments are huge, require long time horizons to make returns for investors, and consequently only governments may invest in them for the good of all. Furthermore, government intervention in water is justified in terms of externalities. It is reasoned that health and environmental ill effects due to water can affect other people and therefore governments need to intervene to intervene to ensure the general good (Rees, 1998).

A further justification for government is the interdependence of water uses within a river basin. Since users' participation in the same river basin or aquifer affect each other, governments ought to intervene to ensure that fairness prevails. Water resource development also has a strategic end. Water resources are often developed and managed by governments because of their strategic importance for national security and for regional development. Governments thus typically maintain ownership of water thoroughfares, providing services such as the coast guard and traffic regulation. Further, some regions are periodically subject to droughts. Because water is essential to sustaining life, governments may take control of water resources development and management (Vajpeyi, 1998, World Bank, 1993).

JUSTIFICATIONS FOR GOVERNMENT INTERVENTION IN WATER POLICY

Smith (1998) helpfully divides the history of government intervention water policy in Australia into three eras, pre-federation or the beginning of European settlement (1788) until 1901, 1901-1945, and 1945 till the 1980s (Smith, 1998). What is generally agreed by other Australian academics is that the three periods were characterised by ample government intervention. Before federation, for instance, Alfred Deakin pointed out as early as 1885 that 'the state should exercise supreme control over all the rivers, lakes, streams and sources of water supply except springs rising upon private lands' (Deakin

1885, cited in Smith 1998, p.153). The pre-federation days were when the Australian settler community needed governments to take the lead to 'subdue, harness and transform the natural environment' (Powell 2000, p. 55).

Australian water policy from the early 1900s to the 1970s was dominated by ideals of an interventionist welfare state, or state socialism (Powell, 2000)[7]. Behind this thinking was the idea that individuals had to trust the all-powerful state governments and let them take direct action in public life. As elucidated by W.K Hancock, the genesis of this idea was two-fold:

> ...first that the State, being more powerful than any person or group within it, may exploit and manage these resources more efficiently; and secondly that the State, being the instrument of the sovereign people, may be expected to exercise its powers for the common good, whereas a private person or corporation might pursue selfish aims inconsistent with the public good (Hancock, 1945, p. 109).

Two world wars intervened and the recovery efforts after each were government-led. At the core of state interventionism was the belief that markets cannot always efficiently distribute social, political and other benefits; hence the term 'market failure'. As a result, Australian state governments needed to perform the function of investing in public works.

Before federation, conventional wisdom was that frontier families were entitled to expect an infrastructure investment from governments to compensate for the niggardly environment they were enjoined to 'pioneer' (Powell, 2000).The need for bigger irrigation efforts resulted in governments building dams, weirs and other water infrastructure all over the continent, especially in the major cities and in the Murray-Darling Basin.

After the six Australian states formed a federation in 1901, there was even greater expansion. The state governments in the Murray-Darling Basin, Victoria, South Australia and New South Wales made efforts to cooperate in sharing water resources, efforts which produced a lot of talk and few concrete outcomes (Connell, 2007). These efforts were

[7] A comprehensive account of state socialism in Victoria is given in a book with the same title by F.W Eggleston (1932).

arguably in recognition of the interdependent nature of using water in a river basin, which includes the fact that users affect each other's water availability and quality. However, in the period 1901 until the early 1980s, less recognition was given to limit water allocations, which led to over-allocation of the resources in the Basin, a problem of increasing seriousness in recent years.

As a historian of water use in the Murray-Darling Basin pointed out, parochialism in water use was predominant before and for a long time after the coming of federation:

> Before federation the New South Wales and Victorian governments saw the benefits of cooperation with each other but did not concede there was a role for the proposed national government. The South Australians disagreed (Connell, 2003, p. 87).

Besides the need to resolve conflict over rural water use, Australian governments prior to and after federation and until the 1980s were seen as needing to intervene in urban water policy to avert health crises. Writing about sewage disposal in Melbourne, Lloyd (1993), citing Dingle and Rasmussen 1991) wrote that public works had to be undertaken because:

> Melbourne stood ankle deep in its own wastes. It had done so for many years but by the 1880s tolerance gave way to a growing repugnance and a desire for something better. The metropolis was on the nose, as visitors frequently complained ...The metropolis was incurably constipated and incapable of ridding itself of its own wastes (Lloyd, 1993, p. 61).

Furthermore, water infrastructure development was linked to general development. The era of 'wise-use' of natural resources in Australia had, at its core, the damming of rivers in the name of progress (Frawley, 1994, p. 61-63). State leadership in water policy was justified in terms of encouraging regional development, economic diversification, agricultural production and price stabilisation. Government-led water investment in water infrastructure was also a part of ensuring that local communities could be sustainable and employ local people, sustaining industry development in the long term. In the short-term, contract employment gained from construction works on infrastructure, another justification for massive investments by governments in water infrastructure, (Laurie et al. 1979, cited in Pigram 1986, p. 248-249).

AUSTRALIAN PUBLIC POLICY AND THE NEED FOR NETWORK ANALYSIS

This thesis looks at water as public policy-making and advances the idea that policy network analysis has significant potential to inform water policy-making in Australia. The reason for proposing policy network analysis to explaining regulation of water in the ACT and Australia is that there has been a dearth of such literature in Australia. This study of policy networks attempts to fill an existing gap in the existing theoretical literature. Texts on policy-making have either paid negligible attention to policy network analysis or often studied policy networks without necessarily being explicit about that (Rhodes 2007).

As a distinct form of academic enterprise, public policy is relatively new in Australia after many efforts to make it distinct from public administration in the late 1970s and early 1980s. The discipline emerged after about two decades of often acrimonious debates between the 'public administration' adherents and those who agitated for the independence of public policy (Wanna, 2003, p. 408-411). While public policy in Australia has largely followed the same theorising that characterises the study of public policy elsewhere (Parsons, 1995)[8], there does exist a distinctly 'Australian' public policy-making style. Australian public policy-making has been influenced by the political, economic and social characteristics of the country. These features include federalism, the country's settler society, immigration policy and isolationism (Fenna, 2004 p. 28-29).

In recent years Australian public policy literature has concentrated on topics such as public policy analysis, policy process studies, public sector management, federalism and intergovernmental relations, public finance, public choice and policy analysis, government-business relations, corporatism and tripartite policy-making (Wanna, 2003, Fenna, 2004). As times and the institutional setting of Australian politics have changed, so did the attention of Australian policy analysts (Weller, 2000).

[8] For an encyclopaedic reference to public policy-making PARSONS, W. (1995) *Public policy: an Introduction to the Theory and Practice of Policy Analysis* Aldershot, U.K, Edward Elgar

Accounts of Australian public policy-making have, however, largely ignored the analysis of policy networks as instruments of policy-making[9]. On the other hand, some of the literature that studies policy network approaches is not explicit about that. Such an assertion is especially true for the federalism and managerialism literatures (Rhodes 2007).

AN OVERVIEW OF PUBLIC POLICY-MAKING IN AUSTRALIA: THE LACK OF NETWORK ANALYSIS

Some accounts of public policy making, relying mostly on interpreting constitutions tend to construe it as the province of formal-legal authorities. Other accounts generally known as the policy process studies tend to view public policy-making as a linear process (Bridgman and Davis, 2004). The government-business relations on the other hand views policy-making as conducted mostly by government departments with minimal participation by outsiders. Others think of policy-making as technical processes concerned with the maximisation of efficiency of outputs.

Public policy analysis

Public policy analysis has concentrated on two areas, the analysis of 'specific sites of analysis' and specific policy issues. With the analysis of specific sites of public life, policy studies examine the legislature, executive, bureaucracy and political parties. On 'specific policy areas or issues', urban or rural policy, environmental policy or health policy are some of the more studied areas of public policy in Australia. Studies that focus on institutions like political parties or the bureaucracy tend to be descriptive of the functions of those institutions and the roles of actors in policy formation and implementation. Attention on specific sites of policy-making has concentrated on the public service of Australia. Inter-departmental politics, budgetary processes, central agency coordination and internal machinations of government departmental process are only some of the issues examined. Depending on the subject of analysis, attention is given to issues relating to the role of bureaucrats in policy development (Wanna, 2003).

[9] Some exceptions to this assertion exist. The most prominent is Mark Considine who uses the power dependence approach in his work on employment services in four countries (Rhodes, undated, p. 3). Most of the rest of the literature studies networks per-se, not describing them in action.

Policy process studies

A cyclical, formal-legal approach to analysis of policy in Australia is found in the policy process studies literature. These studies have tended to take the policy process as a set of distinct activities of a 'policy cycle'. Australian policy process studies cover areas like issue identification, identification of policy instruments, consultation, coordination and implementation. The text by Bridgman and Davis (2004), *The Australian Policy Handbook,* typifies this type of analysis.

Public choice and policy analysis

In recent years public choice analysis has influenced some aspects of policy-making in Australia though it has not produced great scholarly output. According to Wanna:

> Arguably, public choice theories and Australian contributions to this field have had relatively little impact on policy studies and policy analysis in Australia. Paradoxically critiques of public choice approaches or rationalist assumptions (and even a general economic approach to politics) have attracted far more champions in Australia (Wanna, 2003, p. 420).

Economic rationalism however reinvigorated public interest in public policy and the role of government in public policy (Fenna, 1998, p. 37). While privatisation, contracting out and regulation may be spin-offs of economic rationalism, the theory largely assumed the centrality of human rationality as leading policy choices. Yet such rationality is subject to impediments such as insufficiency of information, cost structures that may impede preferred choices and transaction costs (Shepsle, 2006, p. 32-35).

Government-business relations, corporatism and tripartite policy-making

Wanna suggested that the subject of government-business relations, corporatism and tripartite policy-making is one of the most thriving in the political science literature in Australia. This literature tends to follow a policy-oriented direction. Some of these offerings concern themselves with class relations and economic restructuring debates. Early accounts concerned themselves with providing teaching material while lately texts concentrated on such matters as interest group activity, neo-pluralism, radical theory, globalisation and economic integration (Wanna, 2003).

TOWARDS AUSTRALIAN NETWORK ANALYSIS

Prior to the 1980s, the major assumptions of policy-making in Australia had mainly perceived the Australian government as a monolithic entity whose duty was to intervene in public policy. Such intervention was guided by six principles; development, protection, regulator, arbitrator, distributor, organiser and producer (Wolfe, 1977, cited in Davis et al. 1993). The assumption of unity of purpose and structure in public policy has been criticised, however:

> For the state is above all a fragmented set of institutions and individuals with roles that are often contradictory, responding with varying effectiveness to competing class and sectional interests (Davis et. al 1993, p.34).

In spite of the realisation by Davis and his colleagues, policy network analysis has not taken off in Australia. At the same time, the fragmented nature of public services means that policy networks will grow in prominence. Environmental policy in Australia in the 1960s was considered the province of state governments. It has since become a central concern of dedicated semi-voluntary environmental groups, the Commonwealth and shifting alliances of network actors (Fenna, 2004, p. 388-419). In the 1970s, the Commonwealth set up a Department of the Environment, Aboriginal Affairs and the Arts. Australia has had a department of the environment ever since. Environmentalism even spawned a political party, the Australian Greens, which has had federal parliamentary representation in the Senate since the 1980s (http://greens.org.au/about/history/ Accessed on 28-08-2008). The proliferation of political actors in policy areas such as the environment with their new approaches to lobbying means that governments cannot ignore them.

Public sector management

According to Wanna (2003), another area that has attracted the attention of policy analysts in Australia is public sector management. The study of public sector management emerged in the 1980s in response to perceived application of private sector methods in public sector management. In these years 'managerialism' attracted some controversy with critics arguing that it both codified and 'commodified' the behaviour of bureaucrats.

Traditionalists countered that the precepts of 'managerialism' have always been present even before the rise of 'managerialism'.

The 'managerialism' literature increasingly recognises that the delivery of social services is performed by networks and not by monolithic government departments. As a consequence of privatisation and microeconomic reform, the management of other policy sectors such as water is increasingly characterised by a network model. The single, all-embracing government department or agency has been replaced by a network of policy actors, from catchment management groups to regulatory networks involving regulators, government departments and agencies and a range of other actors.

Federalism and intergovernmental relations

As a federal state, Australia has seven 'sovereign governments: the Commonwealth and the six original states' (Fenna, 2004, p.165). It is unsurprising that federalism has attracted much scholarly interest in Australian political science. As Fenna noted, there has been a veritable centralisation of power by the federal government and states ending up having to coordinate with the Commonwealth in the implementation of policies, hence the observation that there is:

> An increasing overlap between the activities of State and Commonwealth governments and the development of *complex networks of policy coordination* [emphasis added] (Fenna, 2004, p. 165).

The federalism literature proliferates. Recent accounts include Martin Painter's *Collaborative Federalism: Economic Reform in Australia in the 1990s* (1998), a study of new approaches to federal-state relationships due to microeconomic reform. The ANU Federalism Research Centre similarly published a book, on the same subject, titled *Microeconomic Reform and Federalism* (1995). The Productivity Commission has carried out numerous studies on the effects of microeconomic reform on several aspects of public policy in Australia, such as the environment (2000b), water quality regulation (2003) and water rights in Australia and abroad (2003).

These studies assume, to different degrees, the centrality of the federal government in policy coordination with the states and territories. The Commonwealth seeks to coordinate their various agencies with state, local, private-for-profit and private not-for-profit actors. Rhodes demonstrates this phenomenon:

> For example, Galligan (1995) argues federalism is not a hierarchy but a complex 'mixing and blending of agencies from both levels of government'. It is best understood as 'a policy matrix in which no government has a monopoly or complete authority', as 'a communications network rather than a chain of command' (Rhodes 2007, p. 4).

Webs of interdependencies between the Commonwealth and the states are now common in policy processes. The various levels also exchange resources in policy implementation. Yet in the literature, the roles of actors are described without actually ascribing any of the actions and policy outcomes to policy networks; hence the observation that Australian political scientists often 'describe networks without wearing a network lens' (Rhodes 2007).

The structure of delivering public services in Australia has altered fundamentally in the past decade with the advent of microeconomic reforms, growing federalism and globalisation. These circumstances have led to marketisation and contracting out of public services. Now the Commonwealth even goes beyond Commonwealth agencies and state governments to engage community organisations as exemplified by the Howard Government's funding of NGOs in the fight against illicit drugs (Davis and Rhodes, 2000, p.85).

Its federal nature means that Australian public policy is necessarily networked. There are networks of public policy between states, the states and the Commonwealth, and state bureaucracies and their local government counterparts. There are also networks between state government departments and business, not-for-profit organisations and political groupings in the states. Kellow (1995) narrated an instance where the federal environment minister had acted to preserve mangroves in a tourist development place in Hinchinbrook, North Queensland. The minister premised the intervention on grounds that clearing the said land would prejudice sea-grass beds under the Great Reef Marine Park. By the time the

minister acted, most of the mangroves in question had been cleared and the remaining quickly lopped before the Commonwealth could enforce its will. As noted by Kellow:

> The case showed that the Commonwealth was dependent upon the Queensland Government studies as the basis for its decision, and it was severely limited in its ability to enforce its control over land-based resources where it really mattered-on the land (Kellow, 1995, p. 205).

What forms of networks exist in the Australian public policy environment? What gives rise to different types of networks? What amounts of influence do they have on policy-making? Do different governments use networks more than others? These questions might assist clarify issues about the priorities of governments. For example, which political parties privilege which interests? In the UK, the coming in to power of the Labour Party in 1997 that saw the prioritisation of 'culture' as an important policy concern (Gray, 2007, p. 101).

POLICY NETWORK ANALYSIS

In recent years, the capacity of governments to control public policy has increasingly declined. Public problems have grown in complexity and expanded to new physical, organisational and economic boundaries. Actors involved in policy processes have expanded to include interest groups, individuals, corporations, regional and international organisations, businesses and not-for-profit organisations (Koppenjan and Klijn, 2004).

Resulting from these changes, the tools that governments use to address public issues have changed with direct government being replaced by networks of diverse entities. While there are several definitions of the concept of policy network, one of the better known is:

> A cluster or complex of organisations connected to each other by resource dependencies and distinguished from other clusters or complexes by breaks in the structures of resource dependencies (Benson 1982, cited in Klijn 1996, p. 2).

The policy network approach is one of many models of analysis of public policy that describe policy-making in 'multi-sector settings' (Klijn, 1996, p. 90). At the core of network analysis is the idea that policy-making is the result of interactive outcomes

between government agencies and actors from the private sector and nongovernmental not-for-profit actors. Precursors of the network model include pluralism and corporatism. Schmitter (1970), cited in Marsh and Rhodes (1992, p. 2) defines pluralism as:

> ...a system of interest representation in which the constituent units are organised into an unspecified number of multiple, voluntary, competitive, non hierarchically ordered and self determined (as to type or scope of interest) categorized which are not specially licensed, recognised, subsidised, created or otherwise controlled in leadership selection or interest articulation by the state and which do not exercise a monopoly of representational activity within their respective categories

While pluralism has become more robust as its proponents responded to criticisms through the years, in Schmitter's foregoing formulation are the major tenets of pluralism, the existence of multiple groups that competed for a space in policy-making processes. The role of governments in this formulation was the allocation of resources to those groups that deserved such resources, given the balance of power in a given society. Governments were therefore perceived as neutral arbiters in matters of resource distribution in society.

Critics of pluralism perceived as its major shortcoming the idea that policy-making was accessible in equal measures to interested groups. In response, such critics came up with the suggestion that policy-making took a corporatist approach. Corporatism:

> ...can be defined as a system of interest representation in which the constituent elements are organised into a limited number of singular, compulsory, non competitive, hierarchically ordered and functionally differentiated categories, recognised or licensed (if not created) by the state and granted deliberate representational monopoly within their respective categories in exchange for observing certain controls on their selection of leaders and articulation of demands and supports (Schmitter, 1970, cited in Marsh and Rhodes, 1992, p 3).

In contrast to pluralism, corporatism emphasises the limited number of participants who can participate in policy making. Furthermore, corporatism has a bias towards economic actors as opposed to social policy, and, unlike pluralism, it emphasises hierarchy in the structuring of interest groups.

There is an argument, which has not been clearly settled as to whether the policy network analysis is American or British in origin (Jordan 1990, Rhodes 1990). However, both political science traditions contributed to the beginning of network analysis. The American versions of policy network analysis, commonly known as sub-governments, whirlpools and subsystems literatures emphasised the exclusivity of policy-making to groups of actors including parliamentary committees, special interest groups and public servants. (Freeman, 1955 cited in Marsh and Rhodes, 1992, p. 5) defines subsystems as '...the pattern of interactions of participants or actors involved in making decisions in a special area of policy'. In Freeman's formulation subsystems made policy:

> Many decisions reached in subsystems though they may be considered minor or detailed or insignificant are collectively the stuff of which a large share of our public policy is made. Emanating from the interaction of participants frequently characterised by their specialization and sheer staying power, these policies individually may lack the glamour to attract wide interest. Nonetheless their cumulative importance...cannot be disregarded (Freeman 1955, cited in Marsh and Rhodes 1992, p. 5).

In response to the perceived shortcomings of the sub-system model, Ripley and Franklin (1980) came up with the sub-government formulation. They defined a sub government as:

> ... clusters of individuals that effectively make most of the routine decisions in a given substantive area of policy...A typical sub-government is composed of members of the House and/or Senate, members of congressional staffs, a few bureaucrats and representatives of private groups and organisations interested in the policy area (Ripley and Franklin, cited in Marsh and Rhodes, 1992, p. 6)

Rhodes (1997, p. 33) cites (Carter, 1964) and McConnell 1966) as pointing out to the possibility that when some members of a sub-government became predominant, they could 'capture' any given government agency in which they form part of a sub government. The result would be that the government agency in question carries out the wishes of a business actor as it goes about its mandate. A particularly well-known example of a sub-government is the iron triangle. Iron triangles are composed of a congressional committee, an interest group and a government agency all engaged in a beneficial relationship. According to Peters, an iron triangle is characterised by interdependent relationships:

> Each actor in the iron triangle needs the other two to succeed, and the style that develops is symbiotic. The pressure groups need the agency to deliver services to its members and to provide a friendly point of access to government, while the agency needs the pressure group to mobilize political support for its programs among affected clientele... All those involved in the triangle have similar interests. In many ways, they all represent the same individuals, variously playing roles of voter, client, and organisation member. Much of the domestic policy of the United States can be explained by the existence of these functionally specific policy subsystems and by the absence of effective central co-ordination (Peters 1986, cited in Marsh and Rhodes 1992, p. 6).

The foregoing examples are mainly derived from the American literature on policy networks. On the other hand, the British literature contributed other models to the policy network model. Among these contributions are Rod Rhodes's model on policy networks and Wilks and Wrights' model on government-industry relations (GIR). Central to the Rhodes model, which precedes the GIR initiative and to which the GIR initiative owes its origin is the idea of power dependence. Such interdependence of policy actors can be described as the 'glue' around which policy networks are built.

Power dependence and network functionality

A major feature of networks that allows such networks to function is the continual interdependence by policy actors on each other that brings them together to share resources. Power dependence theory began as a way of explaining central-local relations in the United Kingdom in 1981. In as much as its origins were based on the relationships between the British central governments and their local counterparts, power dependence has greater resonance to policy networks in contemporary situations. At the centre of these relationships is the idea that due to fragmentation of resources needed to carry out policies, actors continually depend on each other and exchange resources in order to carry out their aims. Such an idea explains to a great extent, the stability of policy-making in the ACT. Power dependence is based on five propositions:

(1) Any organisation is dependent upon other organisations for resources

(2) In order to achieve their goals, the organisations have to exchange resources

(3) Although decision making within the organisation is constrained by other organisations the dominant coalition retains some discretion. The appreciative system of the dominant coalition influences which relationships are seen as a problem and which resources will be sought

(4) The dominant coalition employs strategies within known rules of the game to regulate processes of exchange

(5) Variations in the degree of discretion are a product of the goals and relative power potential of interacting organisations. This relative power potential is a product of each organisation, of the rules of the game, and of the process of exchange between organisations (Rhodes 1997, p. 36)

In power dependence the relationships between central and local governments were viewed as a 'game' in which both central and local governments bargain for advantages. Whereas policy networks are mostly stable entities defined by interdependent actors, these interdependencies take place in a 'game' form of interaction. Such interdependencies occur precisely because none of the actors has all the resources necessary to carry out a policy aim successfully. Actors involved in networks attempt to gain maximum advantage by strategic behaviour and consequently some of the actors have closer relationships with some and less with others (Klijn 1996, p. 98).

The first proposition of power dependence; that any organisation is dependent on others for resources captures the reality of modern organisational life. Resources needed to produce and deliver both goods and services are continually fragmented across many actors. Political power, organisational capacities, informational, finance and formal-legal authority does not reside entirely with any one entity. Such fragmentation leads to the need for actors to depend on each other to carry out acts necessary for implementing policy. Such interdependence is what leads to the second proposition, exchanging resources.

The exchange of resources is necessitated by the lack obvious dominance of any organisation in the resources stakes. Since the organisations involved each have their own objectives, but lack all the requisite resources, each comes into the network with whatever resources they can mobilize and exchange them for something in return. In this way, non-governmental organisations lacking financial resources, however having technical

capacities for implementation may enter into a network to gain money while they offer the services at their disposal.

Another important aspect of policy networks is offered by the third proposition of power dependence that even though actors may depend on each other for resources and continually exchange those resources, they are not equal. This proposition puts forward the idea that though network members are interdependent, there exists in networks a dominant coalition, which also has some discretion. Dominant coalitions in public policy invariably include government representation in some form. Whereas there might be elements of private sector and non-governmental sector participation, government representation in some form or other is always present in policy networks. Such discretion matters since there should be someone with the capacity to direct policy-making by setting the parameters within which policy-making occurs.

The ACT water policy sector has continually been defined by the necessity to share resources. At the centre of these resource sharing relationships is the need to exploit the capacity of ACTEW or its predecessors, who have been largely professional, engineering organisations to the benefit of the ACT's water policy sector. In exchange for its human and other resources, ACTEW has largely been allowed the space and discretion to pursue its policy agendas in the water policy sector in the ACT.

Networks as institutional linkages

A question that arises about how networks function is whether it is individuals or organisations that facilitate network linkages? Wilks and Wright (1987) in their Government-Industry Relations have emphasised the primacy of interpersonal linkages as the ties that enable networks to function. On the other hand, Marsh and Rhodes (1992) perceive networks as sets of institutional linkages with resource dependencies. Institutions mainly come together in networks due to their strategic objectives, and the need to use the particular networks to carry out those given objectives. In this thesis, following Rhodes (1997), networks are treated as sets of institutional linkages with resource dependencies.

However, the ACT case study will later reveal important sets of both institutional and interpersonal linkages that influenced policy-making.

Both institutional and interpersonal linkages can however serve as enablers and constraints on the resources required for use in the attainment of the objectives of policy networks. Marsh and Rhodes (1992, p. 262) for instance give the example of the tobacco industry in which 'the government is conscious of its dependence on this [tobacco] revenue, but it also uses the threat of increased revenue in negotiations with the industry'. At the same time, actors in the network may, due to their interpersonal networks through interactions in the industry act as a constraint on each other's behaviours.

The ACT however presents a network that was based mostly on the pre-eminence of institutional linkages. At the centre of these linkages has been the presence of ACTEW and its predecessors carrying out duties for government in the field of water management and related activities.

In as much as institutional linkages were the cornerstones of the networks through time, interpersonal linkages became important through repeated interactions. However, the genesis of such interpersonal linkages was the institutions of water management in the ACT. Such linkages would have been begun when most of the actors were part and parcel of normal government bureaucracies. In the post-corporatisation era, some of the relationships endured.

Networks and explanations of change

A further characteristic defining policy networks is the idea of change. In water policy-making in the ACT, the changing circumstances of policy-making, especially in the outer environment in which the policy networks existed led to a reconfiguration of the relevant networks. Marsh and Rhodes (1992) suggest that there are four variables, which generally account for change in policy networks. These factors exist in the environment of the networks and are referred to as 'exogenous' factors. They include economic/market, ideological, knowledge/technical, and institutional factors.

Economic factors seem to be the most pre-eminent of causes of change in networks. Access to resources by actors who had lacked such access has the ability to restructure the nature of dependencies. Changes in resource dependencies often mean that actors who had participated in a network out of the need to access resources at the behest of others ends up participating for different reasons.

While economic factors may necessitate changes in network configurations and patterns of dependencies, government responses that follow that change are influenced largely by ideology, the pattern of beliefs that underlie the existence of a government, including the political party in charge of government. Growth in prominence of an ideology that opposes prevailing socio-economic conditions more often than not enforces upon networks, change in their priorities. As an example, the Thatcher government in the UK led to the breaking up of the mainly professional networks in water policy in that country when it privatised water provision (Maloney and Richardson, 1994). Privatisation, regulation and contracting replaced direct government as a favoured tool of providing water.

Knowledge affects network stability in that new knowledge, changes the assumptions and interests of major actors. For example, whereas Australian governments had, until the 1970s emphasised the need to build dams in order to augment water shortages, new knowledge about the impact of dams on ecological health led to a new emphasis in water demand management. Similarly information on the linkages between smoking and ill health led to new approaches to smoking and public health. Now governments encourage cigarette companies to alert smokers to the adverse effects of smoking on cigarette packets. Now government oblige tobacco corporations contribute for such advertising.

Similarly institutions effect change. From global business corporations to regional political and economic blocs, the role of institutions as innovators in governance, lenders of money to governments and regulators means that local networks often have to adapt their behaviour to the institutions that drive the change.

THE RHODES MODEL

The 'Rhodes model' designs network typologies by placing five types of policy networks in one continuum (Dowding, 1985, Rhodes, 1990, Jordan, 1990). In his study of intergovernmental relations, in British government, Rod Rhodes distinguishes between five types of networks according to the degree of integration, type of membership and resource distribution amongst the members. These networks range from the tightly knit policy community to the loosely associated producer networks (Borzel, 1998, p. 257).

A policy community is characterized by highly stable relationships, vertical interdependence, restricted memberships, as network members rely on each other to carry out policy aims. Membership of policy communities is so restricted that such networks are insulated, not only from the general public but also from parliament.

Professional networks on the other hand are characterized by the importance of professions in the policy-making process. Such networks exist to articulate and protect the interests of their members. While they are highly restricted in membership since such membership is predicated on belonging to a profession, they are highly insulated from other networks.

Next on the Rhodes model are intergovernmental networks. Intergovernmental networks tend to be restricted at the level of representation of local government employees interests. Intergovernmental networks are distinct in that they do not have service delivery responsibilities, and as such do not have vertical interdependence.

Producer networks exist to look after the interests of producers of goods or services. Producer networks are therefore characterised by the prominence of economic interests, whether those of the private for profit or public sectors. The level of interdependence among economic interests in producer networks is highly limited.

Issue networks are the last in the Rhodes model. Issue networks are composed of loosely associated actors with no formal relations, beyond their interest in a similar policy issue. Issue networks are therefore fractious and highly contested. Memberships of such networks

are unstable since there is a limited amount of interdependence among members. The continuity of memberships is also very low.

GOVERNMENT INDUSTRY RELATIONS

By applying the Rhodes model to relationships between government and business, Wilks and Wright (1987) developed the government-industry relations model (GIR) (Borzel, 1998, p. 257). The GIR attempts three modifications to the Rhodes model by emphasizing the disaggregated nature of policy networks, pointing out that there is need to emphasize interpersonal relations as a key network characteristic and redefining some of the policy network typologies. They suggest three typologies of policy networks; the policy universe, policy community and policy network (Borzel, 1998). By suggesting that policy networks are more disaggregated than the Rhodes model suggests, Wilks and Wright emphasise that neither governments nor industries are monolithic or homogenous entities. Indeed they suggest that the structure of government is fragmented, differentiated and fissiparous' (Wilks and Wright, 1987, cited in Marsh and Rhodes 1992, p. 6).

Another major difference between the GIR model and the Rhodes model is the emphasis on the desegregation of policy sectors. Unlike the Rhodes model, which suggests that policy, networks exist mostly at sectoral or macro levels, the GIR suggests that it is actually at sub sectoral levels where policy network analysis ought to be strongest. Furthermore, interpersonal relations are suggested in GIR as being at the centre of network activity. Whereas Rhodes had emphasised the centrality of institutions to policy networks, Wilks and Wright suggest that it is interpersonal relations that define the character of policy networks.

The GIR initiative suggests different formulations of 'policy networks', largely by redefining network categories in the Rhodes model. The GIR therefore proposes three sets of networks; the policy universe, policy community and policy network. In the GIR a policy universe refers to a more universal aggregation of actors with interest in the same policy sector. A policy universe is therefore bigger than a network or a community since it includes even potential actors, people who might have an interest in the policy sector.

On the other hand a policy community is more desegregated and actors share similar policy interests in a particular industry. Such actors 'exchange resources in order to optimise their mutual relationships' (Wilks and Wright 1992, p. 18). For Wilks and Wright, the policy network is not a generic term unlike in the Rhodes model. It is meant to be 'a linking process, the outcome of those exchanges, within a policy community or between a number of policy communities.

COMMON CHALLENGES TO POLICY IN A NETWORKED WORLD

The growth of policy networks presents particular challenges for governance. While bureaucracies have their own pitfalls, they offer better opportunities for controlling the activities of actors within those bureaucracies. Citing Max Weber's ideal type bureaucracies, Kettl (2006, p. 370-371), points out that the advantages offered by bureaucracies include that, ideally, experts man such bureaucracies, they have a mission clearly defined by top officials and they have clear lines of authority. Networks, on the other hand, give rise to accountability loss, coordination challenges and the need to find appropriate tools of government and management.

ACCOUNTABILITY IN A FRAGMENTED ENVIRONMENT

The classical view of accountability requires that one person or organisation be responsible for the doing of any governmental function to avoid accountability loss. As expressed by J.S. Mill:

> As a general rule every executive function, whether superior or subordinate, should be the appointed duty of some given individual. It should be apparent to all the world who did everything, and through whose fault anything was left undone. (Mill 1861 as cited in (Mulgan, 2003, p. 189).

The classical view of accountability anticipates the primacy of legislatures and other elective bodies for calling public authorities to account. However, this approach to accountability becomes problematic in a fragmented policy environment since no single actor is directly responsible for the delivery of all policy activities. Responsibility becomes divided between levels of government, public, and private-for-profit organisations, courts

of law and not-for-profit organisations (Posner 2002). Even the term 'government departments' is problematic in that they would not be unified in structure and function. The lack of accountability can occur for various other reasons besides the ones mentioned above. Lack of accountability can result because of the implicit trust that network actors have in each other, thus substituting private governance for public accountability.

FINDING APPROPRIATE TOOLS OF GOVERNMENT

Some writers encourage the 'tools' approach to carrying out public policy in a continually complex world, and in recent years texts dedicated entirely to 'tools of government' have mushroomed (Peters and Van Nispen, 1998, Salamon, 2002a, Hood, 1986). Tools of government constrain government action. Many such tools exist. Hood (1986, 1983) divided them into four major types; advocacy, money, direct government action and law.

Pierre and Peters (2000) point out to several problems with the carrying out of public policy through instruments of governance. Among such challenges is that in reality, policy instruments operate simultaneously and it is often difficult to attribute policy outcomes to any of several tools being used. Furthermore there is no one size fits all with tools of government. For instance, persuasion cannot work for a regime with questionable legitimacy. Another criticism is that tools of government tend to prescribe who may participate in government activity, thereby compromising some democratic ideals by precluding certain parties from participating in policy. The technocratic tendency of regarding tools of government as technical choices means that actors overlook the effects of politics on policy. Selecting any tool of government does not guarantee success (Pierre and Peters, 2000, p. 41-43).

COORDINATION

Coordination is necessary to ensure that public policies are implemented efficiently (Kettl, 2006, p. 370-371). Ideally, bureaucracy remains an effective coordinating mechanism because leaders can define the mission of the bureau, expertise is respected, rules govern the discretion of managers and authority is granted top leaders (Bridgman and Davies, 2004, p. 93).

The challenge in a networked policy environment is to locate who is clearly in charge of policy implementation. Furthermore, coordination of policy could meet resistance because there may not be a clear or shared understanding about what constitutes the goal of a policy. This is especially common in policies which have diverse aims and are carried out by issue networks, which tend to be difficult to control for any central actor (Gray, 2004).

It is the difficulty of controlling issues networks that means that redundancy might be an effective coordination strategy. Redundancy is an approach whereby several actors engage in one activity, ensuring that services can be provided even if one actor falters (Landau 1969). Another coordinating strategy is mutual adjustment. Through mutual adjustment, negotiations between actors' lead to desired outcomes. Such outcomes, however, may come with the disadvantage of compromise that could lead to sub-optimal outcomes (Kettl 2006, p. 373).

MANAGEMENT CHALLENGES

Managing policy in networks is difficult because of the negation of some of the classical assumptions of management (Kettl 2002). Management based on command and control assumes unity of command, seniority and legal-formal authority as the basis for carrying out orders. In a policy network actors bring several agendas to the table. While actors may have the same basic goal, their means to achieve such a goal may differ fundamentally (Salamon, 2002a). As an example, 'green' lobby groups may come to an environmental management network with the agenda of influencing policy against the basic wishes of petroleum agencies, resulting in inherent conflict. 'The management of networks means that actors try to change a game or patterns of games by strategic behaviour' (Klijn, 1996, p. 104).

There is also a need to understand networks that are in charge of a policy sector. For central governments a desire to intervene locally needs to be preceded by understanding the character of the policy network that operates at a local level. For instance, a less cohesive issue network would present fewer problems for centrally determined policy than a policy

community which might sift and mediate any policy initiatives from outside (Gray, 1994, p.130-131).

Advice exists on how to manage networks. Agranoff (2003), for instance, has a ten-point strategy: be a representative of your organisation and the network, take a share of the administrative burden, operate by agenda orchestration, recognise shared expertise-based authority, stay within the decision bounds of your network, accommodate and adjust while maintaining purpose, be as creative as possible, be patient and use interpersonal skills, recruit constantly, and emphasise incentives (Agranoff 2003, p. 29).

MANAGING THE REGULATORY SPACE

While the regulatory space idea is relatively novel, it has been in recent years used in the legal field (Black, 2002a) and sociology, for example (Shearing, 1993b), as well as in political science. As Hancher and Moran explain:

> The key matters requiring explanation – inclusion and exclusion, the relative power of the included, the scope of regulatory issues – will be illuminated in terms of characteristics of the operating organisations: the cultural environment in which they work, their standard operating procedures, the customary assumptions which govern their interaction, and the resources at their disposal (Hancher and Moran, 1989).

Regulation occurring in a regulatory space necessarily entails interdependent relationships between actors due to fragmentation of the resources and the autonomy of those involved. Aspects of regulation such as standard setting, enforcement, implementation and monitoring are open to interpretation by various occupants in a regulatory space (Scott, 2001). Such occupants would range from firms, interest groups, councils, courts of law, international organisations and manufacturers, among others.

Policies require money, knowledge, legitimacy and organisational capacity to implement (Posner, 2002). Fragmented resources mean it is not conceivable that any single organisation can muster all the requisite resources. Large corporations cannot be expected to be 'takers' of regulatory will. Multinational corporations invest all over the world,

sometimes in countries whose capacity to regulate is lower than the countries where the firms originate. Such firms have increasingly assumed the role of sharing governing duties with public agencies, leading to the observation that:

> Whereas the regulation of the behaviour of individual 'private' actors is concerned with the imposition of public or general will on citizens, large firms cannot be described as 'private takers' of regulation in this sense. They have acquired the status of 'governing institutions' (Hancher and Moran, 1989, p. 275).

Fragmentation touches all aspects of regulatory policy including standard setting, monitoring and enforcement, imposition of sanctions, accountability, and policy efficacy. Whereas traditionally standard-setting was the preserve of regulators, now non-governmental organisations and private sector organisations set standards either with regulators, or sometimes by themselves. In some settings, standard-setting responsibilities can even be spread between national and supranational bodies. An example from Europe is instructive in this sense:

> Thus with toys, producers engage in self-certification that products comply with some applicable standard, and then apply the CE mark to their products, without which toys may not legally be sold in the EU (Scott, 2001, p. 342).

Similarly with monitoring and enforcement, fragmentation means that no one convincingly can lay any claim to all the knowledge needed for monitoring and enforcement. The amount of work required to discover the relevant information might be beyond the reach of some organisations while it also requires considerable human resource input. As an example, owing to the presence of many laboratories that need inspection in the USA, the US-EPA can make inspection checks in only one per cent of the laboratories in any financial year (Potoski and Prakash, 2004). Capacity to enforce regulatory policy by any one actor is compromised by the fragmentation and yet enhanced by the prospect of interdependence. Firms are likely to be the ones with the best knowledge needed for enforcement, even though regulators have legal formal authority. It is thus unsurprising that most regulators are likely to educate firms rather than penalise them (Grabosky and Braithwaite, 1986).

CONCLUSIONS

This chapter has had multiple objectives. It introduced the subject of regulation, proceeded to demonstrate the paucity of network analysis in studies of water policy-making in Australia, and in Australian policy-making literature in general. Then the chapter advocated a network approach to regulation, supported by the concept of 'regulatory space'. The regulatory space concept suggests that policy-making is carried out by groups of actors who are interdependent on each other for resources necessary to implement policy. Such interdependence is necessary due to the fragmented nature of policy resources which are seldom owned by any single actor.

Such a description of policy making closely captures the manner of making policies in the ACT's water policy sector. Whereas the sector was reconfigured both structurally and functionally due to corporatisation, the policy priorities remained unchanged, as did the influence wielded by ACTEW, despite the presence of independent regulators. What has held the regulators and ACTEW in cooperative policy-making is the need to exchange resources towards the attainment of policy objectives.

Such resource dependencies occur through the interaction of between institutional structures whose objectives are being pursued through participation in the networks. It is through these institutions however interpersonal linkages, which come to be, formed which might have a bearing on policy implementation.

While the network narrative explains the stability and continuity through time as well as current approaches to policy-making in the ACT, it does not invalidate other theories of policy-making, which have some measure of relevance. For instance, formal legal approaches would explain who the initial set of actors are as suggested by law. On the other hand, interventionist theories of the state would explain the current endowment of the ACT water infrastructure, which was constructed as part of the belief that water shortages had to be met with construction of water infrastructures.

This chapter has introduced the concepts of regulation, public policy-making in Australia and policy networks analysis. The next chapter will trace the development of Australian water policy networks. The chapter will also describe events that necessitated changes in the form and character of the networks in the regulation of water policy in Australia.

3 THE INSTITUTIONS OF AUSTRALIAN WATER POLICY-MAKING: FROM BUREAUCRACIES TO NETWORKS

This chapter assesses the historical development of water policy-making in Australia. Regulation is an instrument of carrying out public policy. It is therefore important to understand the context within which such regulation occurs. This chapter outlines the development of water policy in Australia since federation. Environmental history explains some of the choices society faces from a historical perspective (Dovers, 2000, p. 5). This history delineates the way that policy networks have developed from relatively closed structures dominated by the engineering profession to more open networks that include the finance, economics, ecological and management professions.

The shape and form of water policy-making in Australia (as is elsewhere) is defined by perceptions of what ought to be the role of governments in public policy-making. After European settlement in Australia, ideas of 'state socialism' pervaded policy-making. Policy-making was centrally concerned with the use of government resources to build water storage and delivery infrastructure mainly for the development of irrigation (Powell, 2000). Engineering professionals ran water policy and were prominent in water policy communities. These policy communities were stable, cohesive structures relatively impermeable to outside influence. These policy environments were characterised by respect for engineering and scientific knowledge.

Concerns about degradation of the environment coupled with the rise in neo-liberal economic thought led to a major rethink (if with stops and starts), especially from the late 1960s. Policy increasingly became open to contestation. With the passage of time, an increasing diversity of actors contributed to the policy process, multiple policy-making arenas have sprung up (Connell and Colebatch, 2006). Economic, managerial, accounting and ecological professions have gained more than a foothold in policy, competing with and sometimes surpassing engineering professionals in policy-making. Scientific knowledge is

no longer taken unquestioningly and policy-making is less certain and less stable. It is recognised now that uncertainty pervades environmental policy-making (Dovers et al., 2001, Kellow, 2005).

Next in the chapter is a brief analysis of the main uses of water in Australia. Agriculture is the largest single user, as it is in most countries. In the section I note that the demand on water resources is rising while overall the amount available does not seem to be increasing. The section after that will give a brief outline of some of the institutions involved in management of water in Australia. While noting the fragmentation among the Commonwealth and states water institutions, the Council of Australian Governments (COAG) is the main organisation that coordinates water policy between the Commonwealth and the states and territories. The section after reviews the development of Australian water policy-making from European settlement in 1788 to the 1980s. This section notes that engineer-dominated water boards that mainly carried out water policy were impervious to outside influences such as economic and environmental feasibility. The section after analyses Australian responses to the environmental degradation and rising financial costs that arose as a result of earlier mismanagement of water and increased Commonwealth participation in water policy. The transformations that followed such as new policy networks, new approaches to policy-making, and a heightened role for the Commonwealth are briefly discussed.

WATER USE IN AUSTRALIA

Australia is the world's driest inhabited continent. It has the lowest run-off from its catchments and variable rainfall that distributes water unevenly across the land. Water availability has always been a major issue for policy-makers in Australia. Most of the population in the country is be found along the eastern seaboard where water is more plentiful compared to the rest of the country (Pigram, 1999, p. 493). Australia is thinly populated with 20 million people, covering an area of 7.7 million square kilometres. The use of Australia's water resources is below the water potential in the country, partly due to

water quality constraints and spatial inconsistencies between availability of water resources and demand on the resources (Dinar and Saleth, 1999, p. 22-25).

As is the case in many countries, water in Australia is needed for a variety of uses. Water is required for domestic, agricultural, leisure, industrial and urban purposes. Irrigated agriculture's position as the largest single consumer of water is a global trend (Gleick, 1993). In Australia, irrigation takes up about 80 per cent of the water used in the country (Pigram, 1997, p. 74). Dairy production, beef production, sugar, cotton, ice and other related activities are largest users of water. Consequently agriculture is one of the largest causes of degradation of water quality through contamination of groundwater by chemicals, fertilisers and poor farming practices.

The other concentrated use is mining. It consumes less in comparison with agriculture though the economic contribution of mining is now greater than agriculture. This will continue because of expanded activity in Western Australia due to the mineral boom (Thomas, 1999).

Urban water consumption goes towards Australia's cities where 85 per cent of Australians live. Urban water consumption also includes industrial services. While some of these activities may be located in the outskirts of the major urban centres, most are within the cities. This form of use takes about six per cent of the available water in Australia (Pigram, 1997, p. 74).

THE INSTITUTIONS OF WATER MANAGEMENT IN AUSTRALIA

Institutional arrangements of the water sector mirror Australia's national constitutional framework. The Constitution leaves major responsibility for water policy implementation with the six states (New South Wales, Queensland, Victoria, South Australia, Western Australia and Tasmania) and two self-governing territories, (the Australian Capital Territory (ACT) and Northern Territory).

There are variations in institutional arrangements between the states but water remains firmly in the control of the public sector, even though memberships of networks of water management have increased from prior to the 1980s. Even so there is much fragmentation among public institutions for water management. Apart from the states, water policy-making is a matter shared between the federal government's various ministries, states and territories, universities, farming groups, think tanks and local authorities. To add to the sense of institutional flux there are also consumers, water services corporations, catchment management groups and regulators.

States and territories, through their premiers and chief ministers are members of the Council for Australian Governments (COAG), which oversees the National Water Initiative (NWI) and the Murray-Darling Basin Commission (MDBC). The membership from the various organisations is fluid, however. For example, because they own their water utilities, states are members of a producer network, the Water Services Association of Australia. Catchment management agencies memberships include landowners, utilities, government departments and other interested parties.

THE AUSTRALIAN GOVERNMENT WATER STRUCTURE

Australia has a federal constitutional system of government. There is no single 'water sector' in Australia. In a federal system, where water is still considered a state matter, there is an inherent dispersal of institutions. Apart of the Commonwealth and the states, the two self-governing territories run their water sectors.

Commonwealth Department of the Environment and Water Resources

Until recently, this department was known as the Department of the Environment and Heritage. It was renamed in 2007 as a response to the growing political salience of water in Australia. The department's job is to

> ... develop and implement national policy, programmes and legislation to protect and conserve Australia's environment and cultural heritage http://www.environment.gov.au Accessed on 10/1/2007.

Major programmatic areas under the charge of the department include water resources, atmosphere, coasts and oceans, biodiversity and land management.

States and Territories

Australia's six states and two self-governing territories are important role players in the management of water policy in Australia. Each of the eight jurisdictions is entitled through section 100 of the Constitution to manage water policy. Each of the jurisdictions therefore has myriads of institutional arrangements to manage water. These include water utilities, environmental management departments, catchment management organisations and regulatory institutions.

The Murray-Darling Basin Commission

The Murray-Darling Basin Commission is the primary organisation providing policy direction for the states and territory in the Murray-Darling Basin. The concerned jurisdictions are Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and the Commonwealth. Current chairman of the Ministerial Commission is Malcolm Turnbull who is the federal Minister for the Environment and Water Resources. The Murray-Darling Basin Ministerial Council (MDBMC) provides the policy direction to the Governments involved in the commission.

Council of Australian Governments (COAG)

COAG is a high-level consultative policy forum that consists of the prime minister, head of governments of all states and territories, and the president of the Australian Local Government Association. It was established in 1992 as 'a formal mechanism for regular heads of governments meetings of the type initiated by the Special Premiers Conference (SPC) held in October 1990' (Edwards and Henderson 1995, p. 22). Some of the objectives of the COAG include:

- Increasing cooperation among governments
- Cooperation among governments on reforms to achieve integration

- Continued structural reform of government and review of relationships among governments consistent with the national interest
- Consultations on other major issues by agreement such as:
    - International treaties which affect states and territories and which have not been resolved through agreed processes
    - Major initiatives of one government which impact on other governments and
    - Major whole of government issues ranging from ministerial council deliberations (Edwards and Henderson, 1995, p. 22).

The Water Reform Framework was announced in 1994 with the objective of achieving an efficient and sustainable urban and rural water use. It included amongst its principles:

> [1] pricing for full cost recovery, [2] separation of water access rights from land title, [3] trading of water rights to allow water to move to more efficient uses, and [4] the need for specific provision of water for the environment (COAG, 1994).

COAG is a major instrument for coordination between the states and the Commonwealth in water policy.

AUSTRALIAN WATER POLICY-MAKING THROUGH HISTORY

For most of the time from the beginning of European settlement in 1788 until the 1980s, Australian water policy was primarily concerned with developing water infrastructure for irrigation. Problems with water availability were invariably met with government providing more water storages. Ultimately political interference and inept bureaucracies led to over-allocation of water and environmental degradation. In the generation following the Second World War, there was a major expansion in engineering projects, the objective of which was to augment supply and 'drought proof' the country (Smith, 2003).

Water resources development and its politics

Government-formed water boards were the primary agencies used for the development, operation and maintenance of water infrastructure. Enthusiasm for constructing infrastructure left little thought for the environmental implications of developing water

infrastructure at all costs. The 'development ethos' behind the exploitation of water resources led to several major projects in the Murray-Darling Basin. Included here are the Snowy Mountains Hydro-Electric Scheme, Ord Dam and the Burdekin Dam. Typically the economic benefits of the large-scale projects were embarked upon without much reference to environmental consequences (Connell, 2007, Smith, 1998), the drive being to develop the country.

The Ord Dam typifies the 'development ethos' and its impact on water policy-making. The Ord River scheme is described as a 'pork-barrelling failure' (Smith 1998, p. 170-172). The Ord was built in 1960s in the north of Western Australia at the behest of the state government. The Western Australian Government sought federal funding in continuation of the theme that had begun in New South Wales with the Snowy project. While internationally the Snowy has a reputation as an iconic Australian project, hindsight has suggested that the project has numerous economic and environmental shortcomings. Furthermore, these failings are thought to outweigh the 'national pride' justification used in hindsight to support the building of the Snowy. In line with the mood of the era, economic rationalisations for the Ord Dam project were only published after the project was completed. Thirty years later the papers were released. They confirmed:

> ... that all technical and economic advice was adverse. Initially, cabinet withheld its approval. However, by late 1966 they had changed their decision and there is little doubt that this was influenced by the forthcoming elections in Western Australia. Construction commenced in 1967 and the dam was officially opened on 30 June 1972. It is clear that political expediency overrode agricultural and economic wisdom (Smith, 1998, p. 170-171).

Until the early 1980s, water policy was mostly an internal state government affair. In different states different government agencies ran water policies. What was common to all is the dominance of the engineering profession in running the affairs of the sector. Farmers, residents, industrialists and politicians depended on engineers for construction of infrastructure projects. Shared values about the necessity to construct water supply infrastructure bound these networks together. Such professional networks gave comparatively little weight to exogenous factors like economic or environmental costs in

their operations. Writing on similar circumstances within the English and Wales regional water authorities in England, Gray (1982) noted:

> This impetus was given shape by the values and expectations of the professionals within the industry. Water industry professionals are predominantly engineers who favour technological solutions to problems and tend to see their work as subject for the use of engineering and technical criteria rather than social ones (Gray, 1982, p. 146).

Gray could as well have been writing about Australia where similar approaches were noted (Powell 2000; Connell et.al 2007). While the assumed magnitude of policy dominance of engineers is questioned elsewhere (Cunningham, 1992), owing to the prevailing mood and pressures for development, engineers were important in policy-making because of the skills they held, which were key to the tasks at hand, settling in a harsh, unforgiving terrain. An account of water supply systems in Melbourne in the late nineteenth century illuminates this point. The Melbourne City Council, after coming into existence in 1842, proposed to build a dam. This took seven years to come to fruition. It took the arrival of a Mr James Blackburn '... a civil engineer, who was in after years to become a benefactor to the rising community by reporting on the site now occupied by the Yan Yean reservoir' (Gibbs, 1915,introduction).

Mainly engineers reached the top of hierarchies in the water organisations, so much so that in Australia 'in the mid 1980s it was difficult to name a major water agency that was not headed by an engineer' (Smith, 2003, p. 61). This state of affairs actually began in a different century. So high was the need for the expansion of infrastructure projects that states were not shy to import engineers when they were needed, even from as far away as America. Victoria recruited Elwood Mead for the purpose of centralising the various water providing bodies, a task he accomplished with the help of Victoria's political class (Powell, 2000, p. 55-56).

Water policy communities were stable. There was little external intervention, possibly because of the highly technical nature of the job but also attributable to the belief that the engineers were acting in the interests of everyone. The support of engineering professionals

in policy-making was not restricted to water only as demonstrated by similar widespread support received by the Hydro-Electric Commission of Tasmania which enjoyed large degrees of independence due mainly to its role in development (Kellow, 1996, p. 40). From far afield as articulated by Sir Gordon Jones of the Yorkshire Water Plc in England, even government treasuries, before the years of financial belt tightening, did not interfere much with the running of water boards:

> ... the degree of government interference was quite low, and we were left on a fairly loose rein subject to financial constraints on how much we could borrow (Sir Gordon Jones cited in Maloney and Richardson 1995, p. 47).

If the centrality of government departments in driving policy was a defining characteristic of policy networks in the past, the lack of communication between the various networks was another. Water policy networks used to focus on particular aspects of the water cycle in isolation from other concerns. There were networks of urban water management, irrigation networks, rural water networks, pastoral networks, and sugar cane growers' associations. Each operated as though its interests were entirely unrelated to others. Commenting on Sydney's industry interests approach to water use, Pigram (1986, p 123), narrated that these were located within the water-abundant south eastern suburbs:

> Historically these were a major source of water for Sydney and still provide abundant quantities of generally good quality groundwater. Licensed consumers *may extract as much additional water from the swamps as needed* [emphasis added].

Compared to the current situation where whole of catchment approaches pervade water policy-making, the above citation shows how far water policy has changed. There was evidently little thinking about the effects of upstream consumption on downstream users. Besides Adelaide, most Australian cities did not have to confront significant numbers of upstream users. Actors did not seem aware of each other's presence or conscious of their shared interests. Neither did they seem concerned. There simply was no sense of thinking that water was part of a system. Farmers could draw as much as they wanted. Lack of communication with outside concerns means policy-making was largely impenetrable to outsiders. The nature of development discourse was top-down, and reflected in the

operations of the policy communities. There was no imperative to talk to the wider communities, as McKay explained (2003):

> Water resources institutions (with the exception of South Australia) did not invite much community consultation. There has always been some type of divide be it rural-urban, irrigation-town, local-central (McKay, 2003, p. 370).

The lack of consultation by the engineer-dominated regional water boards gave rise to the fears that they were undemocratic:

> The nationwide proliferation of roughly parallel institutional and regional transformations confirmed it: omnipotent state-wide water and water-related resource agencies including highly specialised behemoths such as Tasmania's Hydro Electricity Commission, which in due course would be criticised as the island's de facto government: and metropolitan water boards invested with huge influence and resource or direct authority in town planning affairs (Powell, 2000, p. 59).

The closed, almost unaccountable nature of policy-making was not restricted to state level actors. At Commonwealth level, the politics of water policy demonstrated similar characteristics. Before 1994, the Commonwealth intervened in state water policy on a case-by-case basis through financing infrastructure projects especially dams. For the most part, states approached the Commonwealth only to request financial support. States were as averse to contributing financially to any Commonwealth-led project that they did not deem as essential as they were to any attempt by the Commonwealth to dictate policy direction in their domestic water polices. Both Victoria and New South Wales exemplify this. Both decided not to contribute a cent to the Snowy Mountains Hydro-Electric Scheme although both stood to gain much from the scheme (The Canberra Times, 7 December 2004, p. 10). Shunned by states that were not shy to beg for money, the Commonwealth had to find excuses to intervene in state water policy. There was no systematic approach to manage Commonwealth-state cooperation in these matters. A conversation between Ben Chifley, then Labor prime minister, and the governor-general William (later Sir William McKell) (former premier of NSW) illustrates the quest for extraneous reasons to undertake infrastructure development. The occasion is the planning for the Snowy scheme:

> 'Don't forget this Ben', I [McKell] said. 'Under this scheme we are going to build generating stations thousands of feet under the earth'.
>
> 'What are we going to do that for', said Chifley
>
> 'So bombs can't get to them', I said. 'This is a defence job. This is for the defence of Australia' (Seddon 1994, p 224 cited in Smith 1998, p. 168).

While the cohesive, largely impermeable and stable networks of policy-making lasted long; this has changed in recent years. The major cause was the concept of government failures. Government intervention in water was turned on its head and formed the backbone of the argument against government leadership in water policy-making. Occurring under the general criticism of 'government failures', the arguments against government-led provision of water marked the end of a long era. These criticisms were generic. The following section examines Australia-specific causes of change in water policy-making[10].

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[10] **Government failures**
Examples of government failures include those that governments misallocated projects funding were overextended, delivered inadequate services to the poor and neglected environmental concerns (EASTER, K. W. & FEDER, G. (1997) Water Institutions, Incentives, and Markets. IN PARKER, D. D. & TSUR, Y. (Eds.) *Decentralization and Coordination of Water Resource Management.* Boston Kluiwer Academic Publishers.). The misallocated project investment criticism pointed out that state-ledwater production and distribution infrastructure has been premature in some instances. Often projects had been undertaken whose scope had been too big for the purpose. Consequently it is said that governments have misallocated finances by putting them in ventures which are less deserving.

Another criticism is that government agencies had been overextended in their performance of water sector duties. Direct government intervention led to government agencies developing, operating and maintaining water systems, thus overextending governments in places where governments already had little implementation capacities. This problem is also signified through the fragmentation of management 'between sectors and institutions with little regard for conflicts or complementarities between economic and environmental objectives' SERAGELDIN, I. (1995) Water Resources Management: A New Policy for a Sustainable Future. *International Journal of Water Resources Development,* 11, 221-232..

Another noted shortcoming is inadequacy of service delivery to the poor. Critics note that nearly 1 billion people lack access to potable water and 1.7 billion have to contend with inadequate sanitation facilities. To compound the problem, the middle and upper classes get subsidies for their consumption while the poor pay more than an equitable amount for the service (Easter and Feder 1997, p. 268).

A further criticism for government intervention was one that it led to neglect of water quality and environmental concerns. The control of the public sector had not necessarily meant the internalising of environmental externalities or health related ones in many developing countries, (Easter and Feder 1997, p. 268). Water pollution has led to many economic, environmental and health problems due to unsafe water usage.

EXTERNAL SHOCKS TO THE SYSTEM: ENVIRONMENTALISM AND ECONOMIC RATIONALISM

While policy networks in the Australian water sector had been predictable, stable, cohesive and almost impermeable, there were changes in the 1980s. The genesis of this change is mainly two-fold. First, the microeconomic reforms spearheaded by COAG, including the Water Reform Framework and National Competition Policy which led to the break-up of government-owned water monopolies. This change was imposed on 'reigning' engineer-dominated communities from outside and led to the break-up of engineer-led policy communities.

Secondly, realisation that the links between environmental harm and water policy could not be ignored led to the National Strategy for Ecologically Sustainable Development (Commonwealth of Australia, 1992). The NSSED, with its precautionary principle (PP), led to, among others, the rise in catchment management groups and intergovernmental and inter-ministerial groupings on environmental water management. Catchment management approaches in turn led to greater participation in water policy by groups that had hitherto been excluded.

The precautionary principle begins from the standpoint that policies are designed in an environment of uncertainty, with information insufficiency (Dovers, 1995). The lack of information means policy-makers have to err on the side of caution (Dovers et al. 1995; Dovers et al. 2001, p. 3). Water policy thus has a higher political salience. This in turn enabled other stakeholders to enter the policy environment, something that would have been unlikely earlier.

Another criticism was the one that many public enterprises in charge of water resources management undercharge for the delivery of water. Charges for the public irrigation systems are even lower in a lot of places despite the common trend where irrigation is the main consumer of water. Because of the under pricing of water, farmers do not have incentives to develop farming methods that would be less water intensive (Easter and Feder, 1997, p. 268).
These criticisms were not specific to Australia. In the Australian policy environment, rising environmentalism and economic rationalism were mainly responsible for the change in policy-making in water.

ENVIRONMENTAL IMPERATIVES FOR CHANGE

Water resource development led to significant environmental degradation especially in the Murray-Darling Basin. Initially the aims of policy-making had been to provide water at all costs to the farmers, cities and industries that needed it. Little consideration was given to the potential environmental effects of these endeavours. Two centuries after European settlement in Australia, the catalogue of environmental degradation has been enormous. (Alexander and Eyre, 1993) list some examples as:

- Almost all rivers which drain agricultural land are highly degraded, largely due to farming practices in their catchments;

- Vast areas of prime agricultural land are threatened by salinity; in 1989 the long-term cost of salinity mitigation proposals in the Shepparton irrigation area of Victoria was estimated at over $800 m;

- Our waters have been polluted by a range of toxins including hydrocarbons from leaking fuel storage tanks, pesticides and nitrates from agriculture polychlorinated biphenyl (PCBs) and a cocktail of poisons leaching from municipal landfill tips;

- In 1991, nutrient pollution led to more than 1000 kilometres of the Darling River having the world's largest toxic blue-green algal bloom. A state of emergency was declared in New South Wales as a result;

- Victoria's Gippsland Lakes have experienced algal blooms causing massive fish kills and threatening tourism; and

- The Great Barrier Reef is suffering from elevated nutrients and turbidity caused by agriculture and urban development in Queensland coastal catchments (Alexander and Eyre 1993, p.78).

The history of the connection between environmental pressure and water in Australia was strongly influenced by international events. The active link between water and environmentalism dates to the Mar de Plata declaration back in 1972. This conference highlighted the connections between water and the environment. Two decades later, in 1992, the International Conference on Water and the Environment in Dublin, Ireland, renewed interest in the linkages between environmental degradation and water policy. Four resolutions, simply referred to as 'the Dublin Principles', provided a guide to policy-makers about how to conceive of water resources. The four principles are that:

- Water is a finite resource, which requires a holistic management approach. Economic, social, and ecological needs are equally important in managing water;
- There is a need to increase participation in water management;
- There is a need to involve women in the provision, management and conservation of water;
- Water needs to be treated as an economic good because of its scarcity.

The Dublin conference was followed by the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. The Rio Conference buttressed the Dublin Principles by pointing out that the environment and freshwater supply are key; available resources had to be monitored; allocation optimised; and that water is an economic good that had to be managed according to demand[11](UNCED 1992, cited in Finger and Allouche, 2002, p. 26).

[11] The principle of treating water as an economic was met with lots of criticism. These are dealt with at length in some of these accounts (GRIMBLE, R. J. (1999) Economic Instruments for Improving Water use Efficiency: Theory and Practice. *Agricultural Water Management,* 40, 77-82, SAVENIJE, H. H. G. (2001) Why Water Is Not an Ordinary Economic Good. *Value of Water Research Report Series No,* 9, THOMAS, C. & CLEGG, P. (1998) Water and the Current Development Orthodoxy: World Bank Policy Under the Spotlight. IN VAJPEYI, D. (Ed.) *Water Resource Management: A comparative Perspective.* London, Praeger Publishers, FINGER, M. & ALLOUCHE, J. (2002) *Water Privatisation: Trans-National Corporations and the Re-Regulation of the Water Industry,* Spons Architecture Price Book. Water is a politically sensitive resource. It has been ascribed in numerous occasions the ability to cause armed conflicts. The control of the resource by governments means they can please certain strong interests in society. Similarly water does not have substitutes. Furthermore water is a system; one cannot abstract water without affecting the interests of others in the system.

AUSTRALIAN RESPONSES

In Australia, governments followed the Rio declaration by framing of the National Strategy for Ecologically Sustainable Development and other policies in the water sector aimed at addressing the challenges of pollution, salinity and over-allocation of water. Other important initiatives were formed prior to the Rio declaration however. Significantly, recognising the inherent problems inside the Murray-Darling Basin, the Commonwealth, along with all the states in the basin came together and formed the Murray-Darling Basin Commission. Its main aim was to try to arrest the decline of the Basin and:

> Promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin. The Initiative is the largest integrated catchment management program in the world, covering the watersheds of the Murray and Darling Rivers, an area of over one million square kilometres
>
> http://www.mdbc.gov.au/about/murraydarling_basin_initiative__overview Accessed on 30-10-2006).

The members of the MDBC are Queensland, New South Wales, South Australia, Victoria, the ACT and the Commonwealth.

THE NATIONAL STRATEGY FOR ECOLOGICALLY SUSTAINABLE DEVELOPMENT

The main objective of this strategy, endorsed in 1994 by COAG, is to promote 'development that improves the total quality of life, both now and in the future, in a way that improves the ecological processes on which life depends' (Smith 1998, p. 270). The NSESD aspires to:

- Develop water management policies that are based on an integrated approach to the development and management of water resources;
- Develop and implement the most efficient mix of water resource management mechanisms; (COAG 1994 cited in (Smith, 1998, p. 270).

In order to pursue the above two objectives, state governments are committed to the following:

- Pursuing integrated catchment management
- Determining the efficient mix of water management mechanisms for their jurisdictions, including appropriate pricing policies, regulatory measures, and better use of existing infrastructure
- Continuing to review the operation of their own water management sector
- Encouraging more rapid adoption of water pricing structures including, where appropriate, complete pay for using tariff policies which more accurately reflect the price of delivery
- Continuing to pursue institutional reform of water agencies (COAG, 1994).

Rising awareness about the connections between water and the environment have led to many new policies, new institutions to manage those policies and networks of organisations with interests in those matters. Some of the policies warranting mention are the Australian Drinking Water Guidelines (ADWG) and the National Water Quality Management Strategy (NWQMS). The latest iteration of the ADWG was produced in 2004. It was a result of collaboration between the National Health and Medical Research Council (NHMRC) and the Natural Resource Management Ministerial Council (NRMMC).

THE COAG NATIONAL COMPETITION REFORM PACKAGE

The National Competition Policy reform package was the instrument by which COAG enforced discipline on the states to comply with the water reform agenda. In 1993 the Commonwealth adopted a National Competition Policy following an independent commission led by Professor Fred Hilmer. Two years later, in 1995, the Commonwealth and all the jurisdictions agreed to the National Competition Policy (Smith, 1998). The Hilmer commission had yielded two major recommendations. The first was to remove any advantages government businesses enjoyed as a consequence of ownership by government.

The second was that government-owned businesses providing services to the public would be corporatised entities (Smith, 1998, p. 271).

Linking the National Competition Policy to the COAG National Water Reform Framework meant that the Commonwealth would from then on pay states for achievement of the various reforms.[12] There were conflicting perceptions of such payments. To some they were a driver of reform (Musgrave, 2000); others saw them almost as a 'bribe'. These critics interpreted the use of financial rewards by the Commonwealth as a soft form of coercion to force its own reform agenda on the states (Sheil and Leak, 2000, p. 38).

The essence of the financial rewards for the states is threefold. First it created an incentive for jurisdictions to adhere to the COAG-led reforms. Only those jurisdictions that complied would be rewarded. Secondly, COAG set up a schedule that the reforms would follow; payment was to be released on timely adherence to the schedule. Thirdly, the strategy created a direct link between Ecologically Sustainable Development and the COAG Water Reform Framework. The linkage to Ecologically Sustainable Development would mean that the direct interaction between water and the environment had to be factored into policy-making (Smith, 1998).

COAG STRATEGIC WATER RESOURCES FRAMEWORK

In 1994 the Council of Australian Governments (COAG) released its strategic framework for the efficient and sustainable reform of the Australian water industry. Through this framework, for the first time in Australia, there was an explicit link between environmental and economic concerns in water reform (Bowmer and Davis, 2004 p. 19). The 1995 'Agreement to Implement the National Competition Policy and Water Reforms' provided the impetus for states and territories to reform their water sectors along lines outlined by COAG. Some of the key implications for all states and Territories included the following:

- Clear definition of roles and separation of regulation from management, planning and ownership of delivery infrastructure;

[12] The next subsection describes the COAG Strategic Water Reform Framework.

- Involving the community in the planned changes, including fully informing the community of the changes;
- Full cost recovery on services provided which should cover all economic and environmental costs;
- Full disclosure of community-based obligations where they are provided;
- Formal allocation of water for ecological purposes through environmental flows;
- Implementation of formal water allocation entitlements with separation of property rights from land title;
- Performance monitoring and benchmarking for water and wastewater services

(COAG 1994, Attachment A, Water Resources Policy)
(http://www.CoAG.gov.au/meetings/250294/index.htm#water
Accessed on 17th 'March 2006'

To encourage states and territories to comply, the Commonwealth was to disburse money tied to such compliance in tranches. Non-complying jurisdictions were to be denied part of such finances.

COAG and structural reforms

The COAG reforms led to several changes in the institutional settings of water sectors of the various jurisdictions. Changes included the structures of water utilities and setting up separate regulatory arrangements as well as transformations underlying the motivations of actors in the sector, or the philosophy of water policy. This aspect of the changes will be discussed in the next section.

One of the major structural changes was corporatisation, now the more prevalent institutional form of water utility in Australia. Through this approach, governments allow public utilities scope to operate like private entities. Corporatisation has two interrelated aspects that are to reform the public utility's administrative and managerial systems, and stimulating competition where it did not exist[13].

[13] Corporatisation entails holding a public utility in public ownership while allowing for a private sector management approach. It has been most favoured in Australia despite initial attempts at privatisation. Another

Opposition in Australia to privatisation meant that policy-makers ensured that corporatisation efforts were not a step towards privatisation. Privatisation has never had uncontested support in Australia (Lloyd, 1993, p. 80). Only ACT attempted to privatise its water corporation, ACTEW, an attempt soundly defeated in the Territory's legislature when only the supporters of the minority Liberal Government voted for it (Donovan, 1999).

Another structural form of managing water utilities, contracting or franchising, entails use of management or service contracts, granted by the public sector to the private sector. In a franchising arrangement, the public sector retains ownership of the water infrastructure as it does under corporatisation. These types of arrangement increase the role of the private sector in water management. South Australia Water has a fifteen year contract for operation, maintenance and operation of water services for places outside Adelaide (ACIL Tasman, 2005, p. 31). This involves maintenance, billing, vehicle leasing and maintenance of irrigation systems.

Transformations in the philosophy of water management

The COAG Water Reform Framework encouraged states to reform their water sectors in other areas, covering water pricing, environmental water allocations, reformation of water entitlements, institutional reforms, consultation and public information, and full cost recovery. COAG suggested that the price of water should reflect all costs associated with collection, treatment and conveyance of the water. COAG advised states to try to ensure:

> ... adoption of pricing regimes based on the principles of consumption-based pricing, full-cost recovery and desirably the removal of cross-subsidies, which are not consistent with efficient and effective, service, use and provision. Where cross-subsidies continue to exist, they should be made transparent (COAG, 1994).

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structural model is management contract. There are many variations in this structure. They include allowing a private sector organisation to carry out certain management aspects such as operation and maintenance, billing, and design and construction of infrastructure. Ownership remains in public hands. A further structural design is privatisation, the sale of public water assets to private sector operators. This model has not been universally applied but was applied in England and Wales FINGER, M. & ALLOUCHE, J. (2002) *Water Privatisation: Trans-National Corporations and the Re-Regulation of the Water Industry*, Spons Architecture Price Book.

The need to legislate considerations for environmental needs meant that governments had to set aside certain amounts of water required for survival of ecosystems and, where necessary, recovery of those that had been damaged. A further COAG condition was the requirement for consultation. COAG suggested that all governments engage their publics through consultation in the momentous changes taking place.

COAG further encouraged member jurisdictions to adhere:

> To the principle that, as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision be separated institutionally (COAG 1994).

A prominent outcome of the separation of regulatory duties from management and ownership was design of regulatory institutions independent of ministers. Implementation of this requirement led to further institutional change in water policy and development of 'institutional arenas' in which policy was made. People unhappy with treatment from water utilities could appeal against decisions to regulators. Water utilities would no longer go to the minister for pricing approvals. Now they had to appeal to independent pricing regulators.

THE NATIONAL WATER INITIATIVE (NWI)

Most of the water sector reforms that are now the new orthodoxy in the regulation of water in the ACT occurred during the era of the COAG Water Reform Framework, which has since been succeeded by the Intergovernmental Agreement on the National Water Initiative. The NWI has made sustainability of water resources a policy objective. It seeks to attain its aims through planning, regulation and market mechanisms. Yet there are possibilities that the NWI attempts to achieve conflicting aims (Fisher, 2007). The linkage between the CWRF and the NWI is not tenuous. The NWI is a continuation of the CWRF, as recognised by the nine heads of jurisdictions signing the NWI statement:

> The Parties acknowledge that the NWI builds on the 1994 strategic framework for the efficient and sustainable reform of the Australian water industry (the 1994 COAG framework), as amended in 1996 to include groundwater and storm water

> management revisions and by the Tripartite agreement in January 1999. The Parties are committed to meeting their commitments under the 1994 COAG framework and continuing to meet the objectives and policy directions of the 1994 COAG framework in a way that is consistent with the objectives and actions set out in this Agreement [NWI agreement, paragraph 6].

The key elements of the NWI are listed as follows:

i. Water Access Entitlements and Planning Framework;
ii. Water Markets and Trading;
iii. Best Practice Water Pricing;
iv. Integrated Management of Water for Environmental and Other Public Benefit Outcomes;
v. Water Resource Accounting;
vi. Urban Water Reform;
vii. Knowledge and Capacity Building; and
viii. Community Partnerships and Adjustment

The National Water Commission

The National Water Commission (NWC) was established in 2004 through the *National Water Commission Act 2004* (Cth) as an independent statutory body reporting to the Prime Minister. The function of the NWC is to assist jurisdictions in implementation of the NWI. The NWC has a staff of about 40 people who all perform support functions to the NWC (Thompson, undated, p. 4). The functions of the NWC include:

- Assess governments' progress in implementing the National Water Initiative (e.g. through biennial assessments of progress commencing in 2006–07);
- Help governments to implement the National Water Initiative (e.g. by acting as lead facilitator on certain actions under the Initiative such as compatible registers of water entitlements and trades, and nationally consistent approaches to pricing), and;

- Administer two programs under the $2 billion Australian Government Water Fund—the Water Smart Australia and Raising National Water Standards programs, including recommending projects for decision by the Australian Government

  http://www.nwc.gov.au/about/index.cfm

  Accessed on 18th May, 2005

The NWC has three working groups; the Reform and Evaluation Group; Corporate, Legal and Communications Group; and the Water Programs Group (Thompson, undated). The Prime Minister selects four of the commissioners while states and territories select the remaining three. The Prime Minister also appoints the chief executive officer.

To ensure compliance, the NWC disburses funds from the Australian Water Fund to states and territories to aid in implementation of the NWI. The Australian Government Water Fund is a $2 billion Australian Government program to invest in water infrastructure, improved water management, and better practices in the stewardship of Australia's scarce water resources. States and territories apply to the fund to finance infrastructure projects in their jurisdictions (Hussey and Dovers, 2007).

CONSEQUENCES OF CHANGE: NEW POLICY NETWORKS, NEW POLICY ARENAS AND NEW POLICY STYLES

The combined effects of environmental and economic reforms in the water sector fundamentally altered the way water policy is implemented. Memberships of policy communities have multiplied. Water policy communities now include, apart from engineers, accounting, economic and finance professionals as well as ecologists. The new networks also include the Commonwealth, professional networks, producer networks, various lobby groups and regulatory networks. Another very important network arrangement exists in the integrated catchment management organisations.

The locus of power has, as a result, changed from the Government office to multiple stakeholders. No longer is the ministerial office the only place where policy is made. The media, regulators, farmers groups, environmental advocacy groups, COAG, the Murray-Darling Basin Commission, courts of law, state and national parliaments have all become part of a wider national water policy-making arena. Policy-making is more complex, unpredictable and turbulent. Such complexity and unpredictability reaches even into COAG.

THE EPISODIC, UNPREDICTABLE POLITICS OF DROUGHT

After the COAG Water Reform Framework many networks have been formed, and policy communities like COAG, the various catchment management organisations, and producer networks like WSAA all represent a new order in the water policy environment. While there have been disagreements within COAG, those have been largely managed internally until recently. Usually only communiqués are released to the public. Drought, however, has disturbed the order and stability that characterises the processes of COAG.

COAG and the politics of drought

For most of the time, COAG's working style is consensual. Meetings are held in all the capital cities by rotation. COAG's role in water policy-making signifies the increasing role of the Commonwealth in water policy agenda-setting. While the Prime Minister convenes the meetings, the Commonwealth still relies on the states and territories to agree to and implement policy. The importance of COAG as an agenda-setter, however, is paramount (Musgrave, 2000, p. 300).

As Australia is the driest continent, the droughts the country experiences have shaken the stability of COAG. In 2006, the effects of the drought brought out some public recriminations between politicians. Contrary to the expectations of state premiers that matters would be dealt with within COAG, the Prime Minister released a report on the implementation of the National Water Commission that was critical of the way the states implemented their water policies. State premiers were neither informed nor consulted. The response was swift and very public:

> Queensland Premier Peter Beattie accused the Howard government of 'political bastardry' saying it had distributed 'piddly amounts' of cash for water reform and had leaked the audit findings to *The Australian* in a bid to embarrass the premiers ahead of a meeting of Labor leaders yesterday (Wallace and Warren, 2006).

Premiers, like the Prime Minister, have an avenue COAG, to discuss their grievances. With drought policy, it seems each side has a need to portray itself as defending the interests of the Australian farmers. As Botterill (2006) shows, attempts by politicians from both the Opposition Labor Party and the ruling Coalition to portray themselves as friends of farmers tend to foreclose open debate on water and drought policy.

Just after Peter Beattie chastised the Howard Government for 'political bastardry', the NSW Minister for Water Resources was grappling with the Prime Minister's visit. Prime Minster Howard in a visit to the state suggested that farmers be exempted from paying fixed charges for irrigation water. To the minister, David Campbell, this was an example of a 'knee-jerk reaction' by the Prime Minister, since he had refused earlier to do just what he was now proposing: extend the exceptional circumstances conditions for federal support to New South Wales. The Prime Minister was seen to be playing a political game (Wallace and Warren, 2006, p. 8).

Uncertainty and contest of policy

The growing numbers of actors in policy-making has led to uncertain outcomes in contrast to the period when engineering solutions were unquestioned. Some programmes remain incomplete because of lack of agreement within policy networks. For instance, in Victoria, the intense rivalry between state political parties, the state government and its federal counterparts has left a total of six projects incomplete. An example is a dam to supply Melbourne built on the Maribyrnong River. Expected to supply 90 000 homes, this dam is opposed by the ruling state Labor government apparently because it was proposed by the Opposition Liberal Party. The Government's proposed project to build a pipeline to take 40 gigaliters of water from the Goulburn River to supply Bendigo and Ballarat is opposed by irrigators, and both the Liberal and National parties, and therefore the state opposition (Mitchell and Wahlquist, 2006).

THE DECLINE OF SCIENTIFIC KNOWLEDGE

With the opening up of policy-making, technical, scientific knowledge has been increasingly questioned in recent years. Embedding the precautionary principle in public policy means actors have to err on the side of caution in the event that there is insufficient information on which to make decisions. Events in the recent past have highlighted the importance of the precautionary principle.

One such example is the Sydney water crisis in 1998. The crisis was caused by discovery of large amounts of *Cryptosporidium* and *Giardia.* Water quality tests failed to pick up the existence of the micro-organisms at first. Subsequently water authorities had to issue 'boil water' notices to address this problem. While no one fell ill, probably because public health authorities urged the public to boil water before use, the panic caused was immense (Stein, 2000b). The failure by scientists to detect the two pathogens caused a lack of confidence among the public (Sheil and Leak, 2000). Yet Sydney is not the only western city to have experienced widespread panic due to concerns about drinking water quality in recent history[14].

NEW POLICY NETWORKS AND THEIR PROMINENCE IN POLICY-MAKING

A further change in policy-making has been the rise in the number and types of policy networks in water policy. From professional associations to producer networks, these networks have both opened up policy-making and increased the number of actors in water policy-making.

[14] Another example is the infection of 13 000 citizens of the US state of Georgia in 1987, 15 000 in Oregon in May 1992, and 403 000 in Milwaukee, Wisconsin in 1993. The Milwaukee disaster apparently claimed 43 lives two years after it occurred; and these were associated with *cryptosporidium.* Las Vegas in 1993 lost about 20 of its citizens due to infections in its water supplies. These mass occurrences have led governments legislating for the management of both agents. In 2000 in Walkerton, Canada, a city of only 5 000 people, 2 300 people fell ill from drinking water that was contaminated with *Ecoli,* with 1 000 of them requiring medical treatment and seven dying CECH, T. V. (2005) *Principles of Water Resources: History, Development, Management, and Policy,* New York, John Wiley &Sons, INC.

Professional associations

Policy-making has moved beyond engineers, politicians and civil servants. Private entities have entered this arena with big impacts. Think tanks like the Barton Group of industry chief executives and the Wentworth Group of Concerned Scientists comment from time to time on water policy. They offer policy advice from both a scientific and economic perspective. The Wentworth Group, consisting of several prominent researchers played a role in the setting up of the National Water Initiative (http://wwf.org.au/ourwork/water/nwi/, accessed on the 8th November 2006). Added to the number of groups clamouring for the attention of federal policy-makers is the Bondi Group, a collective that represents the interests of rural irrigation utility chief executives.

The latest comprehensive report on the direction of the water sector by the Barton Group had the Prime Minister John Howard writing a foreword. In it he welcomed the initiative of groups like the Barton Group and points out:

> Management of our water resources is often complex and challenging and the ideas and views of industry, as for all those who have an interest in water, play a significant role in finding the best way forward. I welcome this contribution from the Barton Group to the important water debate (Howard, cited in (Barton Group, 2005, p. 2).

What is instructive here is that it is now normal for the private sector to have a voice in the design of policy. No longer is agenda-setting a matter only for public bureaucrats and politicians. The Barton Group and the Wentworth Group of Concerned Scientists are not alone in contributing to agenda-setting. There are also other actors such as CSIRO, a Commonwealth research body. The Commonwealth funds CSIRO to conduct research. In other words, government encourages the multiplicity of sources of advice for water policy-making.

Universities contribute to water policy through academic research and related means such as providing consultancy services. The ANU has continuing catchment management cooperation projects with ACTEW in the ACT. Another significant epistemic community is the Cooperative Research Centres (CRCs). There are a number of these and some have had

specific water related interest areas such as catchment hydrology; coastal zone; estuary and waterway management; freshwater ecology; biotechnology, and water quality and treatment (Bowmer and Davis, 2004, p. 37-42).

The memberships of the policy communities intertwine to some extent. The Barton Group counts among its partners, WSAA, some universities and environmental research organisations. The chairman of the Barton Group is Paul Perkins, former CEO of ACTEW Corporation, and now adjunct professor at the Centre for Resource and Environmental Studies at the Australian National University. Perkins was also executive editor of *Water Innovation: A new era for Australia*, one of the more comprehensive accounts of the transformation that has occurred in Australia's water sector in the last two decades (Bowmer and Land, 2004).

HERE TO STAY: THE COMMONWEALTH AS REGULATOR

A further long-term consequence of the new water policy-making regime is that the role of the Commonwealth as agenda-setter and regulator is now entrenched. Only in 1997 did Warren Musgrave point out that:

> The Australian federal government's direct constitutional responsibility for water is concerned with matters that have implications for defence or interstate trade. Federal powers relate primarily to the territories and the marine zone, and to research, meteorological activities, and external affairs (Musgrave, 1997, p. 73).

Musgrave was reflecting on two sections of the Constitution, 98 and 100. The case has been made elsewhere about the contribution of section 100 in the environmental damage that has occurred in the last two centuries (Connell, 2003). The idea that each state could manage water parochially contributed to the ecological damage that exists.

The Commonwealth has now entered into water policy beyond national security and defence. Creation of the National Water Commission signifies further growth of this, as does the recent establishment of the Office of Water Resources in the Department of the Prime Minister and Cabinet that has since been turned into a Department of Environment

and Water Resources. Yet there lacks clarity on how policy will be made between the growing numbers of Commonwealth agencies. For example, there are still no indications of how the newly-created Office of Water Resources in the Office of Prime Minister and Cabinet will coordinate with the National Water Initiative.

Irrespective of the changes, section 100 of the Australian Constitution is fast becoming meaningless. The role of the Commonwealth in water policy is growing. The Commonwealth has taken up the role that used to be that of the state governments. COAG, NWC, MDBC and the various inter-ministerial water groups such s the ARMACANZ appears to be producing federally-designed policy to be implemented by states.

PRODUCER NETWORKS

Water utilities can be wholly government-owned like the ACT's ACTEW Corporation or operate on management contract like South Australia Water. Water utilities play a big part in water policy through the Water Services Association of Australia (WSAA). WSAA is an example of a producer network. Created in 1995, its members service at least three quarters of the Australian population, around 15 million people in 2004. WSAA has 28 members and 25 associate members. Two of the members are New Zealand water services organisations (WSAA, 2004, p. 5, Perkins and McRae, 2004, p. 47). Membership is restricted to water service organisations. To qualify as a full member, an organisation has to service at least 50 000 people (WSAA, 2004, p. 5). Associate membership is available to organisations that have an interest in provision of water services but who service less than 50 000 members.

WSAA is a prominent part of the water sector policy-making structure. For instance, they began a trial run of the water device-labelling scheme that was later taken up by the Commonwealth Department of Environment and Heritage. The *Water Efficiency Labelling and Standards Act 2005* (Cth) is a direct result of that. WSAA continues to develop national codes for the Australian water industry like water sewerage, sewer inspection reporting, and the Sewage Pumping Station Code (Perkins and McRae, 2004, p. 47).

INTEGRATED CATCHMENT MANAGEMENT AND THE MURRAY-DARLING BASIN

While both integrated catchment management (ICM) and the Murray Darling Basin Commission predate the COAG Water reforms, they have been given greater impetus since the reforms took place. Catchment management is a concept that 'stresses the integration of all uses of land and water within a catchment' (Smith, 1998, p 355). The concept of integrated catchment management (ICM) can be conceptualised in three ways: philosophy, process and product. As a philosophy, ICM is about fostering a cooperative approach to environmental resource management. As a process, it is about cooperation between governments and community. ICM as a product refers to the outputs of catchment management planning (Same et.al 1994, cited in (Ewing, 2003, p. 394). ICM is about recognising the interconnectedness between land, water and other environmental resources.

According to Robins and Dovers (2007), currently all of Australia's states and territories have integrated catchment management committees in accordance with COAG direction. There are a total of 56 such bodies under the auspices of the Natural Heritage Trust Extension and the National Action Plan for Salinity and Water Quality. COAG will invest close to two billion dollars between 2002 and 2008 in an attempt to restore Australian natural resource through biodiversity and conservation (Robins and Dovers, 2007, p. 112). Institutionalising these requirements means policy deliberation occurs in many more places. The members of ICM groups in Australia include mostly the farming communities (Robins and Dovers, 2007, p.112). However, such groups also include water utilities, resource management agencies like environmental protection agencies; health departments in their roles as insurers of drinking water quality; landowners and local government.

The Murray-Darling Basin Commission was formed in 1985 to take a 'whole of river basin approach' to water in the basin, treating the system as a catchment. Such an approach takes cognisance of the water quality and quantity, land and other relevant matters associated with water use in the basin (Connell, 2007).

CONCLUSIONS

This chapter has described the changing institutions of water policy-making in Australia. As shown throughout the chapter, the core network at COAG has been able to ensure that sustainable development and economic rationalism pervades policy-making.

The networks of Australian water policy-making are now more transparent. For instance, catchment management groups involve more interested parties who play various roles with government, business and nongovernmental organisations in the management of water catchments. Such catchment management organisations are loose gatherings of parties interested in a river basin and such groups are crucial in managing the quality and quantity of water locally. The openness and cohesion of policy-making is reliant on this type of network. Groups such as WSAA, a producer network, are closed to outside participation.

Mistrust of technical scientific knowledge has grown while engineering professions have waned to be predominant. Recognition of uncertainty in the sector has been formalised through legislating the precautionary principle in some jurisdictions. To date there are more than 120 statutes through all Australian jurisdictions aiming at inculcating the values of the precautionary principle into policy (Stein, 2000a). Water policy has also changed to include economic efficiency, cost recovery and environmental reform. The role of professionals in water policy has now widened to include economic, accounting and other professionals in urban water management, environmental scientists, businesses, property owners and farmers.

Policy occurs in multiple arenas. The MDBC, COAG, independent regulatory agencies, government departments, catchment management bodies, environmental and other interested groups are places where policy-making occurs.

4 THE GROWTH OF WATER REGULATION IN AUSTRALIA

The preceding chapter outlined the changes in water policy management institutions. It focused mainly on policy formulation. This chapter is concerned with implementation of water policy in Australia. Its focus is on the growth of use of regulation as a tool of implementing water policy. While challenges faced by water policy institutions are not new, the approaches used are either new or have been changed specifically to meet the changed scope of policy issues such as cost recovery, environmental allocations or demand management.

Current practice worldwide whereby private corporations, corporatised agencies or management contracts provide water resources has not always been the norm. Before the 1980s, water used to be provided by government departments, state-owned enterprises or public utilities. Like supply of other services such as electricity or telecommunications, public ownership of water bodies was considered a sufficient regulatory mechanism. Public utilities with the approval of politicians set the price, quality and quantity of services (Majone, 1994). This state of affairs has changed drastically. A range of organisations now delivers water, while independent price and quality arbiters regulate the price and quality of water and the impact on the environment. The growth in regulation as a tool of government for managing water is traceable to privatisation, conflict over water sources, global environmental awareness and water scarcity (Finger and Allouche, 2002).

While misgivings that characterised the initial privatisation attempts of water have abated, the 'market' reforms that ushered in private ownership and management of water infrastructure appear to be here to stay (Finger and Allouche, 2002). From monolithic water departments, water policy management has now shifted to actors such as regulators, catchment management authorities and associations of water utilities. It is through regulation that governments try to attain equity, environmental, financial and other policy objectives. Yet even now concerns about the capacity of regulators to manage market reforms and ecological objectives persist (Dovers and Gullett, 1999, p. 123). Managing

water through regulation with numerous policy aims is something governments are still learning to deal with.

After this brief introduction, this chapter outlines the priorities of water management policies in Australia. These priorities include drinking water quality management; environmental water quality management; water allocations; environmental water allocations; the management of the amount of water used or demand management. The chapter will also briefly analyse the regulatory instruments used in each of these activities and the actors involved in management of the mentioned activities. As will be made apparent, regulators use a mix of financial incentives and standards to regulate water quality, environmental flows, and water allocations demand management and water restrictions. Next the chapter will examine how economic regulation is used in Australia. The analysis will include the organisations involved and the approaches used for economic regulation. Just as social regulation uses economic incentives, economic regulation, besides using its traditional instruments, water tariffs, also uses standards in the management of the quality of services. The overall conclusion is that there is no single Australian approach to regulation. Different jurisdictions have different models of economic regulation and allow different amounts of discretion to their regulators. However, there is, especially in social regulation, an increasing role for the Commonwealth as an agenda-setter.

WATER SECTOR REGULATORY PRIORITIES

The term 'water regulation' entails many activities. It has been likened to managing multiple market failures. Water regulation includes managing pollution, drinking water quality, ecological needs of water, demand for water and water pricing (Cowan, 1993).

DRINKING WATER QUALITY REGULATION

Drinking water quality is a major priority of water regulation. Drinking water quality regulation uses a wide array of indicators, including microbiological, chemical, physical and radiological agents (Productivity Commission, 2000a, p. 28). Drinking water is regulated to prevent waterborne diseases from spreading. Hepatitis, cholera and bacterial

dysentery used to be common throughout the world. Their impact on communities used to be immense and in some countries still is. Plagues related to waterborne diseases in Europe used to wipe out whole villages and, in just one year, between 1848 and 1849, a cholera epidemic is said to have killed 53 000 people, mainly children in London (Cech, 2005, p. 132).

Sources of drinking water

Sources of drinking water are natural and artificial bodies of water such as rivers, dams, lakes and ground water sources. Water is normally taken from such sources, treated and distributed for human consumption. Distribution is conducted through an infrastructure network, some of which has been in existence for a long time, making it possible that even the delivery infrastructure might compromise water quality.

Water quality management in Australia is a state responsibility. While drinking water quality levels are generally good, there are concerns. For instance, in 1996, it was found out that in Victoria only six per cent of rural towns had water quality that met World Health Organisation (WHO) guidelines. In Victoria's state capital Melbourne, only eight per cent of residents had water quality meeting WHO standards. A higher proportion of residents received good water quality only if quality were measured by the domestic AWRC/NHRMC standards rather than international standards such as those of the WHO (Smith, 1998, p. 32). Early urban water management was thus strongly driven by a public health imperative.

Drinking water quality standard setting and regulatory practice

WHO and the United States Environmental Protection Agency are the two major bodies in the world promulgating water quality standards (USEPA). Most countries tend to adopt the WHO standards, while the USA's water regulation follows standards set by its own EPA. The Australian Drinking Water Guidelines, ADWGs, reference both standards. The latest iteration of the ADWG was approved in 2004.

Regulatory practices in drinking water quality vary throughout the world. Drinking water regulation is shared across health, environmental authorities and public utilities. Monitoring and enforcement takes two generally divergent approaches. In the USA, the EPA undertakes a monitoring and assessment regime of tests conducted on water samples from water supply laboratories.

Monitoring water quality is not a costless exercise, whether cost is measured in terms of expertise or availability of time and equipment. As a result, full monitoring is not possible. Typically only 1 per cent of water testing laboratories in the USA experience visits by EPA personnel each year (Potoski and Prakash, 2004, p. 154). The difference between the American and Australian water quality regulatory regimes is that, in Australian water quality testing, the utilities are allowed to conduct most of their tests in a self-regulatory environment. Another contrast between the USA and Australia is that USEPA guidelines are compulsory while in Australia they are voluntary. Neither method is infallible. From time to time new pathogens may emerge that evade existing laboratory-testing technologies.

Indicators of drinking water quality

Several indicators measure water quality. They include biological, chemical and physical properties. Some biological indicators of drinking water quality include E.coli, a form of thermotolerant coliforms found in human intestines and vegetation. Possibly as a reaction to the Sydney water crisis and knowledge from elsewhere, the 2004 Australian Drinking Water Guidelines specify *Cryptosporidium* and *Giardia* as new indicators for biological water quality.

Chemical qualities of water include inorganic and organic chemicals. Some inorganic chemicals such as heavy metals may be harmful to human beings while others may only affect the aesthetic value of water. Chemical impurities in water can also result from leaching, chlorination, fluoridation and corrosion of pipes and fittings. Organic chemicals may also contaminate water supplies. Some are so harmful to human beings that they could

be carcinogenic. These chemicals occur either naturally or through contamination such as oil spills or through disinfections (Smith, 2003).

It can be asserted that in recent years, with improvements in technology and understanding of microbiology, incidences of waterborne diseases have been reduced. Yet while technology has so improved as to make most waterborne diseases such as bilharzias, cholera and malaria a thing of the past, major upheavals have still occurred as evidenced by the Sydney water crisis referred to earlier. New pathogens are often discovered after major public health scares and, in some cases, tragedies.

ENVIRONMENTAL WATER QUALITY

Another important water regulatory concern is environmental water quality. There are many reasons for regulating environmental water. If water quality is poor, it could affect irrigation by causing loss of permeability in the soil, or the death of plants. Fish diseases and deaths also occur due to poor water quality.

Livestock welfare is another reason why environmental water quality is important. Like plants and human beings, livestock can fall ill or die because of poor quality water. Sick livestock can lead to other consequences. Diseases such as diarrhoea may be transmitted to people, causing illness and even death in the case of people with compromised immunity such as AIDS sufferers. Environmental water quality is also important because water has recreational use. Swimming and other water-based leisure activities can become problematic if water quality is poor. The need to control faecal and mineral pollution is important for that reason. Protection of marine and aquatic life is another reason for protecting the quality of environmental water (Ute et al. 1997).

Institutions of environmental quality management

The responsibilities for environmental regulation in Australia are vested in the environmental protection agencies (EPAs) or Department(s) of Environment and Conservation. Most EPAs cover regulation of air, water and land pollution management. The structures of the agencies differ from state to state. In Queensland, Victoria and South

Australia, EPAs are independent of ministerial control while in other jurisdictions such as the ACT, environmental water quality regulation occurs within a government department. The ACT's EPA is located within Environment ACT. In Tasmania, Western Australia and Northern Territory, environmental regulation is also conducted through government departments (ACIL Tasman, 2005).

In Australia, the more common water quality complaints concern the amount of salinity in the Murray-Darling Basin. Concerns about salinity are understandable given that in the basin occurs a significant amount of Australian irrigation interests. Other concerns include dry land salinity in most jurisdictions, eutrophication, groundwater pollution and surface water pollution (Ball et al., 2001, p. 1-8).

The instruments of water quality management command and control

Water pollution control normally takes the form of administering command and control mechanisms and the use of economic instruments. There are two types of pollution dangers; point source and non-point source or diffuse pollution. The latter comes from diffuse sources such as runoff, farming activities, bacteria and minerals from human and animal waste, excess fertilisers, herbicides and other agriculturally related activities.

Point source pollution is:

> ... contamination discharged through a pipe or other discrete, identifiable location. Pollution from a point source is relatively easy to quantify, and impacts directly evaluated(Cech, 2005, p. 113-116).

Point source pollution is easier to regulate since regulators can identify the polluter and take appropriate action. Non-point source pollution is more difficult to regulate since it occurs through diverse sources that make it difficult for regulators to monitor and identify sources. Such pollution raises fears of contamination of water sources, whether these are underground sources or surface water sources like lakes, dams, rivers or weirs. Diffuse pollution is linked directly to land use.

Regulators cannot maintain a presence at all times where polluting danger arises. There are two contributors of diffuse pollution, agricultural and urban. Agricultural pollution occurs mostly through over-application of nutrients, fertilisers and pesticides in farming activities. These substances may end up polluting water such as rivers, dams or lakes, or alternatively, recharge the water table and pollute the ground water sources.

Economic instruments of pollution control

Economic instruments are an approach to environmental protection that harness the flexibility of market forces in order to bring about the objectives of environmental protection. The idea of managing the environment through economic instruments is a concept naturally favoured most by academic economists (Gunningham and Grabosky, 1998, p. 68). While flirtations with the idea date back to 1972 with the introduction of the polluter pays principle by the OECD, the idea of using economic instruments for controlling pollution remained theoretical until the late 1980s.

The advantages associated with economic instruments are numerous. These include the assumption that they promote cost effectiveness in achieving acceptable pollution levels, are flexible to implement and provide governments with the revenue support for pollution control (Bernstein, 1993, Gunningham and Grabosky, 1998).

Economic instruments also have disadvantages such as the fact that since polluters may opt for solutions other than those preferred by governments, the effect of economic instruments on environmental quality are not predictable, thus negates one of the stated advantages with regard to predictability of behaviour. Another criticism of economic instruments is that charges can often be perceived as 'the right to pollute' since polluters may opt to cause harm to the environment and pay the price. This criticism is especially valid if the charge thus preferred is not optimal, and yet setting an optimal price for polluting faces problems of collecting the right information. Finally, charges and tradable permits require a sophisticated implementation mechanism. There is still a great need to establish required levels of allowable pollution in order for the system to work properly.

WATER ALLOCATIONS

Water resources are severely under stress in Australia and need to be allocated efficiently between competing uses. Traditional instruments for water allocation include allocation by riparian rights and prior or appropriative or prior rights and public allocation (Herrington, 1987, p. 78-79, Tietenberg, 2000, p. 213, Sampath, 1992, Dovers and Gullett, 1999). In riparian rights, users have the right to the water if it passes over their properties while, with appropriative rights, the user who lays first claim to the water gets priority in ensuing years. Public allocation involves allocation of water rights by administrative mechanisms. These approaches to water allocation are now blamed for leading to inefficiencies, which include over allocation and environmental degradation. Such a situation exists not only in Australia but in the USA, South Africa, Chile and Mexico (Productivity Commission, 2003). To date, Australia still relies on public allocation.

Tradable water rights

In Australia transferable water rights were introduced early and have been lauded by mainly outside observers (Dinar et al. 1997, p. 26, Bate 2006). Acclamations of Australian leadership in this matter seem to be based on the same principles espoused in the magazine, *The Economist*. Supporters seem to equate willingness to trade with good policy without necessarily looking at the consequences. Echoing other commentators, *The Economist* stated:

> The country that takes top prize for sensible water management, however, is Australia ... over the past decade it has radically transformed its water policies, putting much greater emphasis on pricing, trading and the use of the market. The starting-point was a clear separation of water rights from property rights. Australia has managed all its reforms largely within the public sector, preferring to talk of corporatisation rather than privatisation (The Economist, 2003, p. 13).

Clearly it is the statement of policy and not its implementation that evaluations are based on. As Schofield et.al. (2003), pointed out, there are numerous other questions that need to be answered before judgment calls can be made about the efficacy of water allocations. These include deciding the balance between environmental and human needs, poor irrigation infrastructure, lack of predictability about access to water, lack of clarity over the

benefits of access to water and the question of who must make the decisions about allocations (Schofield et al. 2003, p. 7).

The Murray-Darling Basin States face the challenge of declining supplies putting even farming at risk. Since the early 2000s, the Basin has continually received low inflows into dams in the various states and territories (Carr, 2006). While Australia has prior experience with water markets, it still faces several challenges despite positive acclamations. For instance, the attempt by the Commonwealth to buy the allocations from some farmers is likely to be resisted:

> But buying back the megafarms in south Queensland is too hard. It's too hard to buy back water from irrigators when the National Party hates losing productive capacity ... there have been public commentaries on water and attacks on the states. But not an extra drop of water has reached the Murray (Carr, 2006, p. 19).

The National Party is a partner in the ruling Coalition government and Queensland is their principal electoral base. A change in government will not necessarily mean that water trading in some of these over-allocated areas will be as easy. Farmers are reluctant to lose allocations while there are concerns of a social and political nature over the capacity of small communities to survive if they are to lose some allocations. If the coincidence of farming interests and political gamesmanship looks set to stall matters, it is nothing compared to what nature has unleashed on the Murray-Darling Basin in the form of a major drought. Prime Minister Howard called an emergency meeting between the leaders of three states, NSW, South Australia and Victoria. The problem according to Professor Mike Young is that nature will not stand by while politics play out:

> This appears to be a climate shift back to the type of rainfall patterns that we had in the first half of last century. It had been much wetter in the past 50 years and farmers had adapted to that pattern. What we seem to have done is put in place arrangements and practices and built Australia on the assumption that it was going to be much wetter, and we haven't been prepared to make the change back to a much drier regime ... It's critically important that they understand that, as well as a drought; there has been a climate shift.

The Australian Online:
http://www.theaustralian.news.com.au/story/0,20867,20707982-1702,00.html
Accessed on 05-10-2006)

ENVIRONMENTAL WATER ALLOCATIONS

Another one of Australia's major water challenges is to allocate water to the environment. As part of its reform mandate, COAG aims to revive ecosystems both inside the Murray-Darling Basin and elsewhere in Australia. One of the requirements by COAG about environmental claims to water is that states must:

> where they have not already done so, give priority to formally determining allocations or entitlements to water, including allocations for the environment as a legitimate user of water (COAG, 1994).

The realisation has finally set in that ecosystems upon which society are being eroded beyond capacity recover. Australia shares with South Africa the highest stream flow variability in the world; because of that it has the highest per capita storage of water. The total water infrastructure built includes about 450 dams, and 3600 weirs in the Murray-Darling Basin. Such water infrastructure has modified many of Australia's water bodies (Schofield et al. 2003). The natural frequency, duration and scope of flows in these water bodies have been changed by the catchment infrastructure, leading to a loss in flora and fauna. Associated agricultural activity, on the other hand, has led to problems with salinity.

PRICING AND COST RECOVERY

In economic theory, water, like any other commodity, must respond to prices. Yet it is well known that water may not be particularly responsive to price because it does not have alternatives. Added to that, there are perceptions that governments need to supply water to all, to cover basic hygiene and other functions irrespective of ability to pay. Over and above that, pricing water optimally to control demand is not an easy task since water is also riddled with 'externalities' such as ecological costs of providing water and the social costs to provide the commodity (Savenije and van der Zaag, 2002).

The optimal price of water is also subject to seasonal changes. Environmental factors likewise change seasonally adding to the difficulty of determining an optimal price. With regard to water pricing, COAG was specific that prices must reflect the cost of delivering the water:

> to the adoption of pricing regimes based on the principles of consumption-based pricing, full-cost recovery and desirably the removal of, cross-subsidies which are not consistent with efficient and effective service, use and provision. Where cross-subsidies continue to exist, they be made transparent (COAG, 1994).

Economic regulation of water relies mainly on pricing. Different price structures can be used to bring about different outcomes. Several pricing approaches to water exist. These include flat rate tariffs increasing block tariffs, or decreasing block tariffs, off peak pricing and marginal cost pricing (Herrington, 1987). Each of these methods has administrative advantages and shortcomings.

Flat rate tariffs are fees with no direct linkage to the amount of water used and have been in force in most Australian jurisdictions until the 1980s. The Hunter District Water Board, only changed from a flat rate fee structure in 1982 to increasing block tariffs to counter declining revenues (Musgrave, 2000). The disadvantage of flat rate fees is that they are poor signals for demand management. They may also discriminate against poor consumers. After adopting a different tariff structure in the 1980s the Hunter District Water Corporation was able to recoup most of its expenses. Linking usage to prices helped defer the need for a new dam (Musgrave, 2000, p. 303). Flat rate tariffs do offer the advantage of simple administration, since they require little policing and are predictable in terms of the amount of money that they will raise.

According to Herrington (1987), declining block tariffs charge lower prices as the amount of water used increases. This type of tariff, now used with decreasing frequency, was justified on three grounds. Such tariffs can be used to attract businesses to areas that are trying to attract some investment by charging lower prices for water. This argument was advanced by an Australian submission to the OECD on the same matter (Herrington, 1987).

These charges are also justified on grounds that they assist utilities recover costs that accrue as consumer surplus. This justification was made in the sense that if a utility were unable to meet its financial requirements due to charging its customers at the marginal price of the water used, charging higher fees in initial water use would probably cover such financial needs (Herrington, 1987, p. 42).

Off-peak pricing charges for water according to whether water is used during peak times or not. With off-peak pricing, the price for water is reduced during times of reduced demand. The amount charged for water is increased during peak times to adjust for the rising demand (Tietenberg, 1996). Higher charges during peak times help to reduce demand for water while lower prices during off-peak hours lead to utilisation of otherwise idle capacity (Spulber and Sabagghi, 1994). However, this requires a water metering system more sophisticated than currently used.

Marginal cost pricing is employed when it costs a utility more to service a group of people, or a class of customers. Customers living farther away from a water source might be charged more money for the service. It is argued that such an approach is helpful as, in its absence, there is no clear incentive to restrict use of water to need; otherwise these users receive cross-subsidies from those located closer to the source (Tietenberg, 1996).

DEMAND MANAGEMENT

With the rise of ecologically sustainable development as an integral aspect of public policy-making in Australia, demand management has become one of the major regulatory challenges in Australia. Demand management is:

> . . . the development and implementation of strategies aimed at influencing demand, so as to achieve efficient and sustainable use of a scarce resource. Besides efficiency, it should promote equity and environmental integrity (Savenije and van der Zaag, 2002, p. 13).

Water demand is influenced by several factors including applicable regulation, water restrictions and income levels. Factors influencing demand also include water usage

equipment, climate, water supply systems, demographics and land use (White et al. 2003, p. 15-18). Demand management is about targeting the common factors that increase demand and manipulating them to save water. The relatively homogenous sounding term, 'demand management', is not straightforward in practice. Components of this strategy include using quotas, licensing, water tariffs, subsidies or vouchers (Savenije and van der Zaag, 2002).

Somewhat contentiously, others suggest that strategies of demand management must include source substitution and source augmentation. Source substitution refers to the practice of replacing potable water with recycled water. Water recycling and greywater reuse fall in this category. Source augmentation refers to finding new sources of water such as desalination, ground water mining and building new dams (Mitchell et al. 2004, p. 1). These strategies are often costly or environmentally challenging.

Demand management practices in Australia cover a wide array of activities. The uses of technology with vouchers given by governments to subsidise the purchase of water-efficient devices by citizens is prevalent in most states and territories. The practice of rating water-efficient devices and then subsidising citizens to buy them has been extended to Sydney residents (Day and White, 2003). Not all attempts of demand management have public support. Recent attempts at source substitution have failed for various reasons. Following a referendum, recycling treated water for drinking has been rejected in Toowoomba, a major regional centre in Queensland west of Brisbane. Residents did not trust the capacity of science to produce drinkable water from sewerage (Eccleston, 2006).

Water restrictions are a more widely used instrument of demand management in Australia. Water restrictions prescribe when people may use water and the kind of implements they are allowed to use. For instance, Sydney's water restrictions scheme allows watering with hoses only on Wednesdays and Sundays, and strictly before 10 am. Buckets must be used when washing vehicles (Warren and Wahlquist, 2006). Restrictions are not popular because they impose financial costs on businesses, degrade gardens and require expensive monitoring to enforce. In Brisbane the Queensland Government aims to save water by compulsory use of covers on swimming pools.

The Queensland Government sees this as part of the solution to controlling the demand for water. On the other hand, this move brings an additional financial burden on Brisbane residents estimated by Warren and Wahlquist (2006) to cost an average household with a swimming pool about $ 2 000. Pool covers compare poorly with other instruments like water-efficient devices. Malcolm Turnbull has supported the protestations of the residents. Turnbull who is the federal Minister for Water and the Environment has decried what he called the 'pool tax' as the latest example of failure by state governments to take charge of water policy in their jurisdictions. In his opinion water infrastructure such as dams, while expensive to build, have longer lasting positive impact once they are in place and in operation (Warren and Wahlquist, 2006, p. 28).

Persuasion is another instrument of demand management. Workshops, telephone hotlines, television, radio and other popular mass media approaches are used in this way to relay the water saving message. The major challenge for this approach is targeting the audience efficiently. Information is seldom used in isolation. It is used concurrently with other programmes, usually water restrictions (White et al. 2003).

Managing water demand can also be done through encouraging use of water saving devices including a programme to replace old, water-wasting devices such as showers with more efficient devices. Residents are encouraged by subsidy to buy new, efficient ones. Devices are graded and labelled according to water efficiency, a scheme pioneered by the Water Services Association of Australia but is now led by government (GWA, 2003).

Water tariffs as demand management

The use of prices as a demand management tool is now part of the overall strategy in all-Australian jurisdictions. However, a study of the use of volumetric charging in Brisbane has demonstrated the futility of using pricing as a demand management strategy. On their own, water tariffs are insufficient. They must be used with other strategies as demand for water is relatively inelastic (Hoffman et al. 2006). Various pricing strategies are considered in more detail in the section below.

ECONOMIC REGULATION

Economic regulation manages monopoly service (Parker, 2001, Rees, 1998). Some reports question how much a 'natural' monopoly water is, suggesting that some aspects of the infrastructure could be split up and made 'competitive' (Klein, 1996, World Bank, 1994, Spulber and Sabbaghi, 1998). The suggestion by advocates of 'competition' as a way to make water services more efficient is that services can be 'unbundled' to stimulate competition further. Competition, it is suggested, could also be encouraged through the technique of 'yardstick regulation' (Baldwin and Cave, 1999). Normatively yardstick competition regulates firms by comparison with other firms in the same geographic location in order to discover the cost structure of the firms. Sometimes firms are reluctant to reveal all the information a regulator needs claiming 'commercial-in-confidence' (Cowan, 1994, p. 123).

Rate of return regulation

It is generally accepted that economic regulation of water involves two major techniques, rate of return regulation and price capping. Rate of return regulation originated in the USA. In rate of return regulation, prices are set at such a level that the regulated firm attains a reasonable return on its asset (or regulatory asset base) after allowing for efficient capital and operating costs. The idea is that the utility will be given an incentive to invest (Baldwin and Cave, 1999, p. 225). This method does not guarantee the firm any profit. Ideally, if the firm in question is efficient, it can improve profitability. Problems associated with this approach include the thinking that firms may over invest (also called gold plating), or pad their costs so they claim a higher return. The major task facing regulators under this approach is to discover information about the true costs to the firm of doing its normal business (Parker, 2001, p. 14).

Price cap regulation

Price cap regulation is used mainly in the UK and it is usually credited to Professor Stephen Littlechild (1986). Littlechild's work was initially meant to regulate the privatised telecommunications industry in the UK. Price capping has since been replicated in other

industries including water; which other countries have since adopted. Through this method, the regulator sets a maximum amount a utility can charge for water. This approach assumes that once a price cap is set, the firm has an incentive to be more efficient in its operations. How profitable a utility is depends on how efficient it can be. Once set, a price cap is operable for about five years. Annually the utility may vary its prices to take account of the rate of inflation. Price capping like rate of return regulation requires extensive information for the regulators on the firms' cost structure.

ECONOMIC REGULATORS IN AUSTRALIA

The term 'regulators' might give the impression of commonality of function and purpose. Yet there is nothing coherent about regulatory policy among Australian states. The transformations of the water policy sector have led to an increased role for economic regulators.

Semi-autonomous regulators and independent regulators

Economic regulators now occupy the space that historically had been the preserve of government departments, agencies and ministers, a space between the politicians, businesses and the consumer public. In some states some of the functions of economic regulators are shared between the regulators and government ministers. For example, Western Australia's Economic Regulatory Authority (ERA) refers the final decision on water tariffs to the minister. In Queensland, the Queensland Competition Authority (QCA) functions a supervisory agency rather than an entity that sets water tariffs (ACIL Tasman, 2005).

In the ACT and New South Wales, regulators have the ultimate say in setting the price of water. These regulators are respectively the Independent Competition and Regulatory Commission and the Independent Pricing and Regulatory Tribunal (IPART). In Victoria the Essential Services Commission (ESC) has only recently expanded its scope to regulate the entire water sector in the state, including licensing the state's metropolitan water bodies (ACIL Tasman, 2005, p. 48-54).

SERVICE QUALITY REGULATION

Another dimension of economic regulatory activity is the quality of service rendered by utilities to customers. In Australia, it is economic regulators who manage this. In England and Wales, by contrast, the Office of Water Regulation (OFWAT) conducts this function through an independent proxy, the OFWAT National Customer Council (NCC). The NCC assists OFWAT in regulating the customer service aspect of economic regulation:

> They have statutory duties to identify concerns, represent the views of customers, and investigate the customers' complaints. Ofwat regularly consults the CSCs for their views on policy matters concerning customers (Stanley, 2000, p. 89).

Even though normally associated with economic regulation, service quality regulation mainly relies on standards, which are social regulatory methods. The regulator and the utility agree on service standards which the utility is expected to attain, and will be penalised in the event of failure. In some jurisdictions such as England, the regulator instructs the utility to pay the customer a rebate, the amount of which is pre-agreed between the regulator and the utility. In 1990-91, Ofwat introduced a five-pound penalty rate for failure to meet service standards and in the same year imposed 682 fines for the 880 complaints brought before it (Markou and Waddams Price, 1999). The fines have been increased to a maximum of £1000 for damages due to flooding caused by a utility failure.

There is general agreement in the UK, however, that service quality has improved since privatisation (Markou and Waddams Price, 1999, p. 387). In many regulatory environments, regulators set targets for utilities and where they exceed those targets the regulator rewards them.

Performance standards are not about imposing penalties only (Klein, 1996, p. 8). There are many types of performance standards. Below is a list developed by the Western Australian Economic Regulatory Authority:

- Drinking water quality standards;
- Drinking water pressure and flow standards;

- Drinking water continuity standards;
- Sewerage service standards;
- Irrigation water quality and delivery standards;
- Drains and drainage standards;
- Customer service and complaint handling standards;

Accessed at: http://www.era.wa.gov.au/water/industryLicensing.cfm, accessed on 4-11-2006

The challenges of service quality

Higher service quality is not costless. In order to provide higher service quality, utilities have to invest in more infrastructure and human resources with the view to reclaim those investments by higher tariffs. Customers then benefit through reliable water supplies. Yet while setting standards of service and enforcing them ought to bring about improvements, there are challenges to determining optimal quality. Matters surrounding quality are now highly politicised because some in society feel that those with more money should not pay more to cross-subsidise those who are poorer. Moreover, establishing the ideal quality is not an easy task.

Challenges to measuring quality

Assessing willingness of customers to pay for higher quality water is riddled with challenges. Such challenges include market inexperience, lack of understanding of probabilities, strategic policy bias and customer attitudes. Market inexperience is implicit in a monopoly position. Customers do not have commodities of similar quality on which to base comparisons. Another challenge lies with understanding probabilities. Willingness-to-pay surveys based on probabilities of percentages can easily confuse respondents. A respondent never knows the real probability of such an event occurring.

Such problems may also extend to water when utilities request consumers to rate their willingness to pay on the probability of a hosepipe ban or power cuts. Another difficulty is the strategic or policy bias. This is the conscious, tactical act on the part of the supplier supplying information to consumers that they think will lead to outcomes that they favour.

Out of concern for high water bills customers may state that they do not have any desire for increased water quality, because they know that increasing water quality could lead to higher water bills. In that case such strategic customers may claim that the current levels of quality is fine for them, even if it is not. Discerning desire for higher quality is also problematic because customers may have gained attitudes towards processes associated with the quality of the service in question. For example, opposition to privatisation may lead people to perceive everything associated with it negatively (Baldwin and Cave, 1999, p. 244-245).

CONCLUSION

Regulatory institutions now commonly attempt to address various water policy issues. The structure of such institutions differs from jurisdiction to jurisdiction. In the ACT and New South Wales an independent price arbiter regulates water tariffs, while in Western Australia this function remains with the minister.

In social regulation, numerous institutional structures exist. These include drinking water quality regulators, catchment management organisations and environmental water quality regulators. For social regulation, institutional forms also differ. Thus Victoria has an independent drinking water regulator whereas such a job is left to a government department in the ACT.

There is no single Australian regulatory model. Each of the various permutations can be better understood within its particular circumstances. Succeeding chapters examine a particular case, the Australian Capital Territory, and how it has developed its regulatory regime.

5 THE LEGISLATIVE AND INSTITUTIONAL FRAMEWORK OF WATER GOVERNANCE IN THE ACT

Writing on the various challenges facing Australian water policy after COAG reforms began, Smith (1998) singled out the role of regulators as a major concern:

> The main deficiency in the process of corporatisation has been the inadequacy of the definition of the role of regulators (Smith, 1998, p. 287).

Water policy has since changed immensely. Responding to the challenge, the ACT Government has since created many regulatory instruments. Environmental Flow Guidelines were a response to problems with the provision of water for the environment. The Drinking Water Quality Code of Practice was promulgated to manage drinking water quality. During the peak of the drought, government responded with a water restrictions scheme. To add to the regulatory mix, the Commonwealth Government has taken an increasingly prominent regulatory role through the National Water Initiative and the Murray-Darling Basin Commission.

Amidst recent institutional changes in the ACT's water sector has been one constant, ACTEW Corporation or its predecessors. Providing quality drinking water, enforcing water restrictions or managing wastewater have all been ACTEW's or its predecessor's tasks since Canberra came into existence. In recent years, releasing environmental flows is a task ACTEW has been assigned as well. In 2000 ACTEW went into partnership with a private company, Australian Gas and Light (AGL), to found ActewAGL. ActewAGL then inherited most ACTEW's employees and the duty to manage the water and wastewater infrastructure on behalf of ACTEW and supply water and wastewater services to the ACT and Queanbeyan.

THE HISTORY OF THE ACT WATER POLICY NETWORK

The policy network implementing water policy in the ACT has existed since 1909 when Canberra was established as capital of Australia (Donovan, 1999). Until 1988 the Commonwealth provided water through various departments in the 1980s, the Water Service Branch of variously the Commonwealth Department of the Federal Capital Territory, then Territories and Local Government. When Canberra became self-governing the ACT government inherited water and sanitation employees from the Commonwealth.

1909-1988: COMMONWEALTH PREDOMINANCE IN CANBERRA

Canberra, the capital of Australia, was founded in 1909. Water policy in the Territory was to become the province of two organisations, the National Capital Development Commission (NCDC) or its predecessors[15] and the Water Supply Branch or its predecessors in the various departments responsible for administering the ACT (first called the Federal Capital Territory). A succession of such departments includes the departments of Interior, Capital Territory (1972-1983), Territories and Local Government (1983-1987) and between 1987 and 1988, Arts, Sport, the Environment, Tourism and Territories. The NCDC was in charge of planning issues while the Water Services Branch was in charge of the operation and maintenance of water services infrastructure. Water provision had always been a primary concern in the siting and planning of the national capital of Australia. While debate on the location of the national capital preceded federation in 1901, it took nearly a decade, until 1909, for the federal parliament to decide on the location of Canberra because of the need to find a location with sufficient water potential.

After dismissing both the Gudgenby and the Naas rivers as sources of water, the Cotter Dam was judged sufficient and work began in 1909. The First and Second World Wars interrupted construction of Canberra. After the Second World War, however, the Commonwealth set up the Federal Capital Advisory Committee (FCAC) to advise on matters of constructing the national capital. Unsurprisingly, engineers dominated this committee as the national capital still grappled with water and other infrastructure needs.

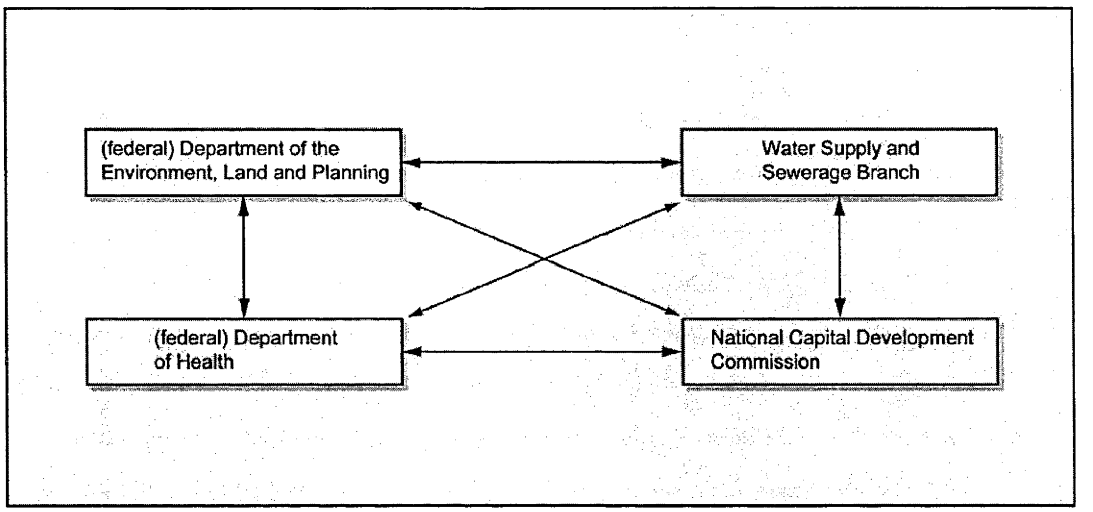
[15] The Federal Capital Advisory Committee preceded the NCDC. After self-government NCDC was abolished and a number of its responsibilities were vested in the National Capital Authority.

The ACT's water policy network is tightly knit; it is a typical example of a durable policy community. While in many jurisdictions elsewhere, such as in England and Wales, water policy communities were broken up when the government sold water companies to the private sector, in the ACT, new institutions were crafted from pre-existing government departments and retained in the public sector. ACTEW was created in 1987 by amalgamating the Water Services Branch of the Commonwealth Government Department of Territories and Local Government with the ACT Electricity Authority (ACTEA). The new authority was called ACTEW, short for ACT Electricity and Water Authority. Once established, ACTEW was allowed to commercialise; it operated as though it was a private company though it remained a government agency. It was corporatised as a government-owned corporation in 1995 as part of the ACT Government's efforts to rationalise government services. Such an action by the ACT Government was fully supportive of earlier actions by the Commonwealth. Speaking seven years earlier, the (federal) junior minister for Arts and Territories saw corporatisation of ACTEW in terms of gaining efficiency and profitability:

> The main advantage of the change is the ability to reduce the overall size of the ACT bureaucracy while at the same time using the already existing expertise and infrastructures within the ACT Electricity Authority to provide a sound basis for ensuring more commercial and customer-driven provision of water and sewage services (Punch, G, 1988, cited in Donovan 1999, p. 163).

Prior to corporatisation the water policy sector in the ACT consisted of very few organisations in comparison to today. Besides the Water Services Branch, other organisations in the water policy sector included the National Capital Development Commission, a federal organisation with overall planning authority for the Territory. The NCDC, subsequently partially replaced by the National Capital Authority, was responsible for managing federal spaces such as Parliament House and Lake Burley Griffin. While the Health Department was in charge of managing public health, ACTEW carried out drinking water quality duties in its entirety.

Figure 1: The Water Policy Sector Before Corporatisation



Running water policy in the ACT was a matter for very few actors as shown by figure 1 above. For instance, while the Health Department was responsible for regulating drinking water quality, it was the Water Services Branch that effectively made the decisions such as adding fluoride to water. Similarly, ACTEW performed many functions meant for the Department of the Environment, Land and Planning. The Water Branch also handled the controversies that emerged as a result.

It is unsurprising that ACTEW had so much responsibility in water policy; it was set up to be a monopoly. Regulation was just another function and was not separate from the corporation's structure. ACTEW set its own regulatory standards and monitored their own compliance with them. Being a self-regulatory organisation means that government's critical mass of water policy staff was within ACTEW. Upon corporatisation, most of these transferred to the new organisation, ActewAGL or its subsidiary, Ecowise Environmental.

More probably the Hilmer Report and Competition Policy and the Council of Australian Governments (COAG) water reforms led to relocation of employees to the public-private partnership leading to conduct of regulation with a skills base smaller than that of ACTEW. Upon corporatisation and partnership with AGL, most of that skill base was relocated to the private company ActewAGL. A former Water Branch, ACTEW and ActewAGL employee explained:

> The Water Services Branch at that stage had 400-500 people running water supply. They were then in about 1990 transferred to what then became ACTEW. And then in 2001 the joint venture was formed and all of those staff were transferred to the joint venture. Their contracts are with ActewAGL (Interview with Ken Horsham, 23 November 2005).

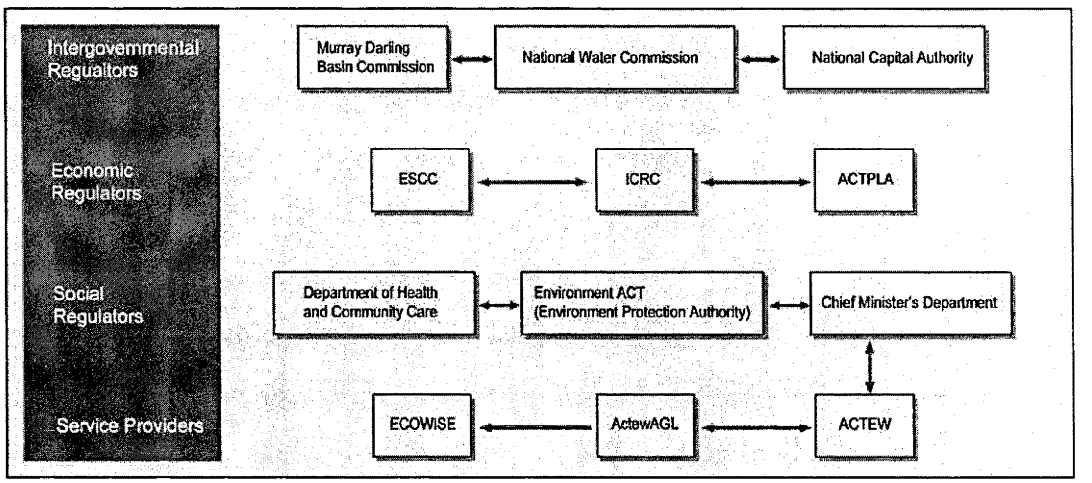
Once ACTEW was corporatised, more institutions were required for regulation. The economic regulator was set up in 1997 to set water tariffs, a task previously performed by ACTEW. The Essential Services Review Commission was removed from the Department of Justice and Community Safety and given the status of an independent commission. It was renamed the Essential Services Consumer Commission (ESCC).

ACT Health in 1997 promulgated the *Public Health Act*. Its provisions included reassignment of regulatory power from ACTEW to the ACT Health Department. Inside the Environment Department, a new unit, Environment ACT, was tasked with regulating water quality and water allocation. What is important to note is that existing government departments like the Department of Health were given a greater role in regulating ACTEW. As noted, ACTEW remained a government-owned corporation, but essentially a holding corporation with minimal staff.

The new water sector

The post-corporatisation water sector is almost unrecognisable from what it was before 1986-87. Besides the domestic ACT regulators, federal agencies and programs now also have regulatory influence in the ACT. The National Water Initiative and Murray-Darling Basin Commission have joined the regulatory institutions in the Territory. The institutional complexity has been heightened by ACTEW's subcontract arrangement with ActewAGL and its subsidiary Ecowise Environmental. The stated intent of simplifying the institutional structure has certainly led to the direct opposite!

Figure 2: The New Structure-Post Corporatisation 1997 to date



Between 1988 and 2000 ACTEW's leadership took advantage of the changing circumstances arising from National Competition Policy reforms. With the liberalisation of the electricity market, ACTEW bought into some of the corporations and made profit. In the words of a former chief executive officer:

> In the first four years, we made a lot of money, about a hundred million. What we did with it, we didn't deliver the dividend to the Government. We used it to capture a share of the market, the emerging market, and at one stage we were able to capture a share of the market by doing the deal on power purchases, understanding the value of it (Interview with Paul Perkins, 15 December, 2005, Canberra).

Ironically, when other corporations were being broken up, ACTEW was consolidating. ACTEW's leadership felt that if they were to partner with any private organisation, it was important they did from a position of strength, to safeguard being weakened by their lack of assets to contribute:

> When there came the time for AGL, they were a bigger player, they were happy to take that market risk. But we delivered to them a significant share of the market much bigger than what you had expected from a regional market here (interview with Paul Perkins, 15 December 2005, Canberra).

FAILED PRIVATISATION BID

An important part of the contemporary history of water resources management in the ACT is the failure of the ACT Government to privatise ACTEW. It is likely that had ACTEW been privatised the water policy culture in the ACT would have been vastly different. In 1995 the then minority Liberal Party government led by Chief Minister Kate Carnell brought a motion to the Legislative Assembly to privatise ACTEW. The attempt, however, was strongly resisted. Opposition to ACTEW's privatisation came from trade unions, ACTEW employees, some ANU academics, the general public and opposition parties in the Legislative Assembly. Respected academics from the ANU, including Professor Max Neutze wrote a paper disputing the Government consultants' justifications for privatising ACTEW. The privatisation motion was defeated in the Legislative Assembly when the Labor Party and other opposition groups combined against it (Donovan 1998).

THE CHANGE THAT NEVER WAS: MANAGEMENT MERRY GO ROUNDS[16]

The ACT Government may have given up day-to-day operations of the water sector in the ACT, yet there is a major caveat to that. The Government has left largely intact the actors who have run water policy from before 1988. While new organisations have been formed to regulate water, the working cultures of their predecessors remained largely intact. Whereas in England and Wales, the ten original water companies were sold to private interests, in the ACT, corporatisation meant that ACTEW remained a government entity, with the Treasurer and the Chief Minister as the two shareholders in the corporation. The working culture in ACTEW and the wider ACT water policy community nevertheless remained stable. The same faces remained, running it in different organisations, for the same principal, the ACT Government.

Continuity through transfers board memberships and top leadership

In 1988 employees of the Water Services and Sewerage Branch were transferred to the newly created ACTEW, and with it, arguably transferring the working culture to the new corporation. It was not just the operational employees who were transferred to the new

[16] This section relies on information from DONOVAN, P. (1999) Lights! Water!... ACTEW!: A History of ACTEW and its Predecessors. ACTEW Corporation, Canberra.

organisation. Top leadership was also transferred, ensuring that the public service culture that had previously developed endured in the new era. Paul McGrath was brought in from the Water Branch's electricity counterpart, the ACT Electricity Agency (ACTEA), to act as chief executive officer in 1988. A year later, McGrath left the job. Another acting chief executive, Sandra Welsman, was recruited from the Snowy Mountains Hydro project. She held the post until 1991. After Welsman, Ted Quinlan (later Treasurer in the Stanhope Government), took over in an acting capacity for three months. Dr. Mike Sargent, the first significant non-ACTEW insider to hold the CEO position, held the job from 1991 to 1997. When Sargent left, Paul Perkins, a nine-year ACTEW veteran, took the job for a year. John Mackay took over in 1998.

Mackay held the job as ACTEW chief executive until 2000 when ActewAGL was founded. MacKay became head of the new organisation. Mackay sits on the ActewAGL board of directors as a result. Paul Perkins was reappointed head of ACTEW, a job he held for three years. Perkins' successor at ACTEW, Michael Costello, a former executive of two Commonwealth departments, now sits on the board of directors of ACTEW, ActewAGL and chairs the board of directors of Ecowise Environmental. James Service, a founding board member of ACTEW, sits on both the ActewAGL and ACTEW Corporation boards of directors, as does Michael Easson.

Similarly minimalist changes also occurred in the second tier of management. In 2000 Asoka Wijeratne moved from ACTEW to ActewAGL as general manager of the corporation's Water Services Division. Wijeratne had been with ACTEW since 1987 and is also a director at Ecowise Environmental. Another long serving member of ACTEW, Ian Macara, a former ACTEW lawyer credited with developing some of the current regulatory instruments, moved to ActewAGL as head of legal and secretarial services, a position he still holds. Ross Knee is currently part of the ACTEW leadership team with responsibility to liaise with government departments on relevant policy matters. Knee's previous appointment was managing director of Ecowise Environmental Services and before that was with the Water Service and Sewerage Branch.

The knotted world of the ACT water policy community

Staff movements have not been restricted to the ActewAGL-ACTEW axis, however. Some significant examples in this regard include Werner Padarin, compliance officer at ACTPLA, the safety and technical regulator. Padarin is a former ACTEW engineer prior to corporatisation who stayed in the Government service and is now supervising ACTEW for the same activities he carried out in ACTEW.

Another significant example is Ted Quinlan, who was Treasurer in the ACT Labor Government from 2004 to 2006. Quinlan began his career in the Water Services Branch and rose through the ranks. During the transition to corporatisation he was appointed acting chief executive. However, in a bid to alter the organisational culture, John Mackay was preferred as chief executive in the place of Quinlan.

Before he left, Quinlan was put in charge of negotiating the transfer of assets from the Commonwealth Government to the ACT. Quinlan and his team secured a good deal for the Territory. At one point they excused themselves from the talks when the Commonwealth looked like refusing to sell the assets at the price that he and his team wanted. That price turned out to be a bargain $ 91.287 million for four dams, a water delivery network in great condition, the Lower Molonglo Water Quality treatment plant and some other water treatment plants (Donovan, 1999, p. 169). As Treasurer of the Territory Quinlan, along with the Chief Minister is one of the only two voting shareholders in ACTEW.

Another example of the interwoven nature of the ACT's water sector regulatory network is current chief executive officer of the Independent Competition and Regulatory Commission, ICRC. Ian Primrose was seconded from the Treasury to set up the new economic regulator. He still occupies that position. While Paul Baxter and the other two commissioners make decisions on a water tariffs, it is Primrose who runs the day-to-day operations of the ICRC, including its relationships with other organisations in the ACT. In the Essential Services Consumer Commission (ESCC) the chairman, Peter Sutherland, is a longstanding member of the ACT Council of Social Services, ACTCOSS. Bill Pearcy, like Sutherland, is a member of both the ESCC and the ACTCOSS. Paul Baxter's other job is

as a member of the two-person Independent Audit Group of the Murray-Darling Basin Commission.

The question thus might be, so what if many people who worked together in a previous era continue to work together and interact regularly? The answer is that the relationships that have been established continue in the new era. Such continuation of relationships mean that cultures persist in the policy community despite the changes in the names of organisations or the titles awarded the 'new' management. This, needless to say, ensures continuation of cultures from a past era in a 'reformed' policy sector.

ACTEW AND ACTEWAGL

ACTEW was founded on 1 July 1995. It is a wholly government-owned corporation. Its shareholders are the ACT's Chief Minister's Department and the ACT Treasury. Being a government-owned corporation, ACTEW's regulatory obligations are covered under the *Corporations Act 2001*. The corporation owns the entire water and wastewater infrastructure in Canberra. However, ACTEW operates its licence through the ActewAGL public-private partnership in which it is half the partner (ActewAGL profile follows below). ActewAGL is a multi-utility provider of water, gas and electricity(ACTEW, 2003).

ACTEW also holds interests in the TransACT Communications Pty Ltd which provides communications services including broadband and telecommunications. The corporation also owns three subsidiary entities, the ACTEW Retail Limited, ACTEW Distribution Limited and ACTEW China Limited.

The Utilities Licence (for provision of potable water), the Drinking Water Licence (the health aspect of potable water), and the Water Resources Licence (for abstraction of water) are all held by ACTEW. ACTEW currently has only ten employees. All other people responsible for supplying water to Canberra and Queanbeyan are employees of ActewAGL, which conducts business on behalf of ACTEW.

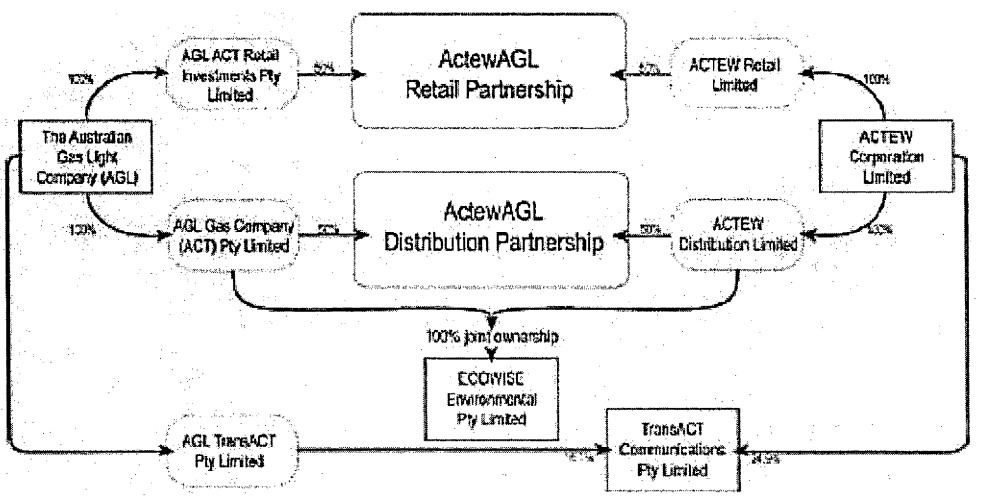
As described by the ActewAGL Water Services Department manager:

> ActewAGL is not the regulated body. We manage the business on behalf of ACTEW, which is the regulated body. ActewAGL is essentially a contractor to ACTEW (A Wijeratne, email communication, 15 November 2005).

ActewAGL

In October 2000, ACTEW Corporation came together with Australian Gas and Light (AGL) to form an entity commonly known as ActewAGL. ActewAGL is now the subcontractor for ACTEW in provision of water and wastewater services in the ACT. ActewAGL is composed of two partnerships, the retail and distribution partnerships. ACTEW Distribution Limited owns half of ActewAGL distribution while the rest is owned by AGL Gas Company (ACT) Limited.

Figure 3: ACTEW, ActewAGL Ownership Structure (2005)



Source: (ActewAGL, 2005b, p.1)

The ActewAGL retail side is concerned with electricity. The partnership in this instance is divided between ACTEW Retail Limited and AGL Retail Investments Limited. This side is in charge of customer service, marketing, Internet services and telecommunications. TransACT contracts on behalf of the joint venture in the telecommunications business. In 2005, ActewAGL had 1351 people working for it (ActewAGL, 2005b). This number

included employees of Ecowise Environmental. Through ActewAGL, ACTEW was responsible for providing water and electricity to 325 000 people in the ACT in 2005.

THE UTILITY MANAGEMENT AGREEMENT

ACTEW Corporation has only ten permanent employees currently. The corporation's comparatively small workforce raises questions about how it can properly supervise its subcontractor, ActewAGL with 1350.

Part of the answer to this question lies in a contract called the Utilities Management Agreement (UMA). The UMA structures ACTEW's relationship with ActewAGL. The predecessor to the UMA was known as the Water and Sewerage Management Contractor Alliance Agreement (WSMCAA). The WSMCAA was a discovery phase contract, preparing for a longer-term understanding between ACTEW and ActewAGL. Its two objectives were to uncover:

- The costs of the water and sewerage business on a commercial basis; and
- The risks of that business (Costello, 2005, p. 5)

The UMA commenced in July 2005 after the WSMCAA lapsed. During the WSMCAA, ACTEW carried all the risks of providing the services. The lessons from the WSMCAA informed the UMA, which equally splits the risk between both ACTEW and ActewAGL. The UMA is to last for the next 16 years and has an extensive scope:

- Water and Sewerage Emergency plan
- Water resources management plan
- Risk management plan
- Asset management plan
- Compliance plan
- Exit plan
- Operating plan
- Research and development and industry development plan

- Health safety environmental management plan
- Customer services plan
- Human resources plan (ACTEW, 2005b, p. 8).

The various aspects of the UMA are meant to cover the details of ActewAGL risks. They not only act as the parties' means of sharing the risks and benefits; they facilitate means by which the parties can hold each other accountable. They also define the risks of the business. These include the following:

- The policy and regulatory environment, legislative changes and factors which may have a direct impact;
- On ACTEW or influence other sources of risks;
- Commercial, legal and regulatory relationships between ACTEW and other organisations;
- Including ActewAGL, suppliers, subcontractors and lessees;
- Financial, trading and economic circumstances;
- Human behaviour;
- Natural events;
- Technology and technical, including operations;
- Management activities and controls, such as occupational health and safety for employees; and
- Public health and safety, public liability and security (Costello, 2005, p. 6-7).

THE ACT GOVERNMENT

The Australian Capital Territory attained self-government in 1988. Before this period the Commonwealth public service supplied the water and wastewater services to the ACT and Queanbeyan. The *ACT Self-Government Act 1988* established the right of ACT residents to run the affairs of the Territory. Upon self-government, the Territory inherited the employees of the Commonwealth government who had administered the ACT. The decision to transfer Commonwealth employees to the new government included employees

of the Water Services Branch in the then Department of Territories and Local Government. Those employees transferred to the newly-created public service carried over the benefits and entitlements they accrued from the Commonwealth government (Grundy, 1996).

The ACT has a Legislative Assembly consisting of seventeen members. The Australian Labor Party has been the party in power in the Territory since 1999. The chief minister, Jon Stanhope is the head of government in the ACT. The main opposition party is the Liberal Party, currently led by Mr Bill Stefaniak. The cabinet of the Government of the Australian Capital Territory has eight major agencies. These agencies include the Chief Minister's Department, headed by the Chief Minister and the Treasury also headed by Jon Stanhope. Others are the Department of Justice and Community Safety, ACT Health, Department of Education and Training, ACT Planning and Land Authority, Department of Municipal Services and the Department of Disability, Housing and Community Services. All ministers come from the Labor Party which has a majority in the Assembly-the first majority government in the Territory's history.

WATER POLICY AND THE ACT GOVERNMENT

Water is a cross-cutting issue for most ACT departments. The Chief Minister's Department is the central policy-coordinating department. It also liaises with outside organisations such as the Murray-Darling Water Commission and the National Water Council. It is responsible for bringing together all other government agencies and leading in policy issues concerning water. It is a voting shareholder in ACTEW. The Treasury, the other voting shareholder in ACTEW, is in charge of setting the terms-of-reference for the ICRC to refer to at the beginning of each regulatory period for setting water tariffs. ACT Health manages drinking water quality.

The Forestry Department by virtue of its mandate looks after the catchment. Similarly, the Emergency Services Department look after the water hydrants on the streets to ensure that they are located in the right places and have the right water pressure. Schools have a longstanding policy of reaching out to students by engaging them in water conservation

studies. Since 2000 when Think Water Act Water (more of this later) policy was written, schools also run a competition on water management.

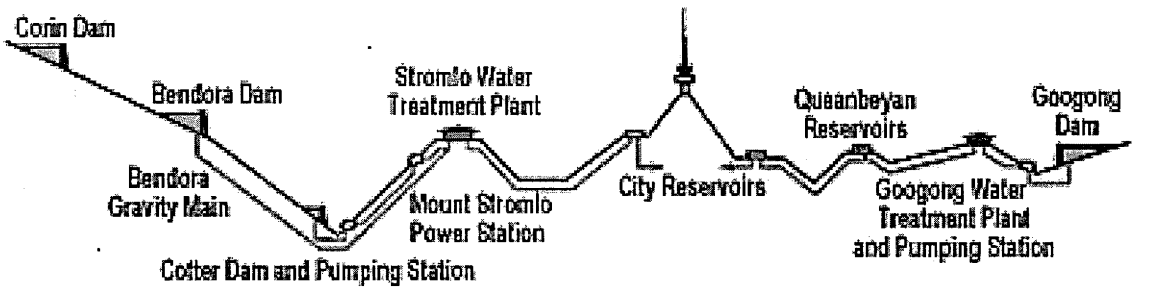
ACTEW's financial significance to ACT Government

ACT Government derives its revenue from four major sources. These sources are tax revenue, Commonwealth government grants, user charges and a category named 'other revenue'. In 'other revenue', most of the money comes from government owned corporations. ACTEW contributes most of the revenue in this category. Budget information since 2000 demonstrates that the contribution of 'other revenue' has been growing steadily. From 15 per cent in 2000, the budgetary contribution of 'other revenues' has grown to 19.3 per cent in 2004 Quinlan (2002; 2003; 2004; 2005). ACTEW's importance is both financial as well as provision of employment.

THE POLITICAL ECONOMY OF THE ACT WATER SECTOR

ACTEW holds the licence to provide water and wastewater services to the cities of Canberra and Queanbeyan. Canberra's water is gravity fed into the city from the Cotter Catchment, where the city's three dams is located (Interview with Paul Baxter, 25 November 2005, Canberra). Gravity feeding water reduces costs of reticulation. The other dam, Googong, located in New South Wales, is not gravity fed into Canberra. For the other three dams, the water from the rivers is stored in the dams then gravity fed into service reservoirs. From there the water is pumped into homesteads after treatment at the water treatment plants (WTPs). Figure 4 below depicts the ACT water reticulation system.

Figure 4: ACT Domestic Water Reticulation System Profile (2005)



Source: http://www.actewagl.com.au/default.aspx?loc=/water/profile.htm

Accessed on 17-03-2006

POTABLE WATER RETICULATION

With between 340 000 and 357 000 consumers to serve, ACTEW has about 134 000 customers (WSAA, 2004, p. 18-19). In 2004, the profile of Canberra's potable water supply infrastructure stood as in Table 1 below. The city of Queanbeyan in New South Wales is also part of ACTEW's customer base.

Table 1: Basic Statistical Profile: Water Services in the ACT

Water Services Statistics	2004-05
Number of customers	134 020
Number of dams	4
Capacity of dams	215.4(GL)
Number of reservoirs	45
Capacity of reservoirs	912(ML)
Number of pumping stations	23
Length of mains	3013 (KM)
Maximum daily demand	267 (ML)
Total consumption	51921 (ML)
Consumption per person/year	144 (KL)
Rainfall	593.7 (mm)

(ACTEW, 2005a, p. 25)

THE SEWERAGE COLLECTION AND TREATMENT SYSTEM

Once water is used in the domestic system, it exits properties through the back pipes connected to sewer mains. This main transports the water to the Lower Molonglo Water Quality Control Centre (LMWQCC) where the water is treated and released as

environmental flows. The solids collected from the treatment process are sold to farmers as fertiliser (Donovan, 1999, p.229).

Table 2: Basic Statistical Profile: Sewerage Services

Sewerage Services Statistics	2004-05
Number of customers	130 355
Number pumping stations	26
Quantity of sewerage treated	27293 (ML)
Maximum daily load	113 (ML)
Sewerage treated per-person (per annum)	(84 ML)
Length of mains	2948 KM
(ACTEW, 2005a, p. 27)	

To ensure maintenance of high drinking water quality standards, potable water and sewerage disposal pipelines are kept apart. Sewerage pipes enter in the back of the yard while the potable water pipes enter in front. The pressure in the pipes is also kept high to ensure that foreign elements do not enter the pipes.

THE ACT WATER SUPPLY INFRASTRUCTURE

Ensuring a viable water supply was always an important concern for national authorities when deciding where to locate the capital. Massive investments were made in securing the capital's water supply to ensure viability of supply, resulting in four dams being built between 1912 and 1979. The Corin, Bendora and Cotter Dams are all located on the Cotter Catchment, which is zoned as the Namadgi National Park. The other dam, Googong, is located in New South Wales (ACTEW, 2004d, p. 1-2).

Cotter Dam

The Cotter was the ACT's first dam, completed in 1913. In response to population growth in the Territory its wall was raised from the original 18.5 metres to 31 metres in 1951 to accommodate the needs of Canberra's growing population (ACTEW, 2004d, p. 1). The Cotter Dam has a total storage capacity of 4.7ML.

Bendora Dam

The Bendora Dam was constructed in 1961 in response to continuing increases in demand. The dam has a storage capacity of 10.7ML. Like the Cotter Dam, water from the Bendora Dam is gravity fed into Canberra.

Corin Dam

The Corin Dam was completed in 1967. It is the largest of the three dams in the Cotter Catchment. It has a total capacity of 75.4ML, more than that of the other two dams combined.

Googong Dam

The ACT's other dam is the Googong Dam. Googong Dam's total capacity of 125GL. Googong Dam capacity exceeds the combined total of the other three dams.

THE WATER TREATMENT INFRASTRUCTURE

The ACT has a couple of water treatment plants (WTP), which are necessary for the purposes of improving water quality standards through treatment. The two major plants are the Mount Stromlo WTP and the Googong WTP. The Googong WTP is located in New South Wales.

Mount Stromlo WTP

The Mount Stromlo WTP is used to treat water from the Cotter Catchment. It has a capacity of up to 300ML per day (ACTEW, 2005a, p. 13). The Mount Stromlo WTP started operating in 1961. In the aftermath of the 2003 bushfires, a $ 39.3 million upgrade had to be made to add a filtration plant (ACTEW, 2005a, p. 20)

The Googong WTP

The Googong WTP was commissioned in 1979 to treat water from the Googong Dam. The plant has a capacity to treat up to 270ML per day. This plant is especially relevant in that the Googong Dam is located in a high intensity agricultural area.

THE LOWER MOLONGLO WATER QUALITY CONTROL CENTRE (LWMQCC)

The LMWQCC is Australia's largest inland sewage treatment plant. The centre recycles more than half the wastewater from Canberra. The water recycled is used to augment supplies of greywater in Canberra including environmental flows and irrigation for the local golf course and a vineyard (Perkins and McRae, 2004, p. 79). The first facility of its type to gain an ISO 9002 in Australia, it was also among the first in the world to have an ISO 14001 accreditation.[17] Accreditation is gained for certain arrangements which enable compliance including records management, auditing and corrective action as a basis for improvement and quality planning (Thompson, 2001, p. 102-103).

DRIVERS OF ACT REGULATORY POLICY

In 1985, the ACT Government changed its water policy by using ACTEW rather than a government department to provide water and wastewater services. Several pressures influenced this change. To date, the ACT's water policy is undergoing constant reforms both structurally and in the philosophy of the sector. In the ACT, COAG-led reforms, drought, rising environmental awareness and the January 2003 bushfires are the major causes for change in water policy.

THE COAG WATER REFORM FRAMEWORK

The COAG Water Reform Framework was dealt with at length in chapter 3. Here we assess its implications for the ACT. The changes proposed by COAG cannot be said to have been totally new initiatives for states and territories. For instance, the ACT was the first Australian jurisdiction to implement a two-part tariff for water, including a fixed charge and a volumetric charge before the COAG changes (Dickson, 2005, p. 1). Again, the Territory had already gone through with the design of its 'ACT Future Water Supply Strategy: Our Water Our Future' containing many elements of the COAG water reforms (ACTEW, 1994). In what would have satisfied COAG's imperative for community involvement, the strategy fully involved the community from its inception and through the drafting process, culminating with announcement in the Legislative Assembly.

[17] The International Standard Organisation awards accreditation to deserving corporate entities depending on their accession to certain levels of performance in safety in areas such as environmental quality monitoring.

Other changes such as corporatisation of water service organisations were an entirely new idea. Notwithstanding privatisation in the United Kingdom, many Australians were unwilling to privatise water utilities and to ensure that corporatisation of water authorities was not a precursor to privatisation (Johnson and Rix, 1993).

Drought

The ACT has periodically experienced harsh periods of drought. The worst occurred between 1939-45. It is this particular drought that highlighted the need for drought contingency planning in the ACT. Current modelling for drought preparedness uses the 1939-1945 droughts as a benchmark. The droughts from 1963-68, though not so harsh, lead to the ACT's first water restrictions. There was another drought in the years 1979-83 (ACTEW, 2004d). The current drought has led to design of a new *Water Restrictions Act.*

The current drought brought to the fore the need to increase supply through dam construction. It also brought into play several other regulatory and management changes to the Territory's water management system. One was a question about the willingness of ACT residents to comply with water restrictions if that would mean postponement of construction of a new dam. Canberra residents it seems are willing to adhere to some form of water restrictions, but not beyond stage 3[18] (ACTEW, 2005c).

ACTEW's projections based on the 1994 Future Water Options study had indicated that the Territory could actually supply about 405 000 people comfortably from existing water capacity (ACTEW, 1994). New models, however, forced a revision. The Government, through ACTEW, has thus had to revise its estimates of water needs radically. Such remodelling was based on climate variability of future rainfall and evaporation in the ACT, climate change and the impact of the bushfires on storage. Modelling for water needs was not influenced only by natural factors. Other factors affected by government planning have been important in influencing perceived needs for augmentation of water supply. Some of them include population growth in Canberra and including Queanbeyan, cross border

[18] The water restrictions scheme and its stages are explained fully in chapter 7.

supply to approximately another 26 400 people in 2030, attaining water efficiency rates of 12 per cent on 2023 inflows (ACTEW, 2004c, p. 6-7).

Extensive community consultations were undertaken by ACTEW to assess community attitudes to the issue of augmenting the ACT's water supply. ACTEW's initial issues paper proposed thirty alternatives for augmentation of water supply. Through community consultations, these were reduced to three:

- Enlarging the Cotter Dam by building a new dam on the Cotter river
- Building a new dam off Tennent Mountain
- Transferring water from New South Wales' Tantangara Dam to the ACT (ACTEW, 2005c, p.1).

In the end, ACTEW decided that the best option was to transfer water from Angle Crossing into the Googong Dam, New South Wales. The scheme will take up to three years to implement at a cost of $40 million. In conjunction with the Cotter-Googong Bulk Water Transfer Project (CGBWTP) it is expected that Canberra will not need a new water supply source until 2023 (ACTEW, 2005a, p. 19).

Bushfires 2002-03

The ACT is currently grappling with the effects of the last major outbreak of bushfires that ravaged a large part of the Territory in 2003. These bushfires damaged about 98 per cent of the Cotter Catchment, the ACT's most viable source of potable water. The fires also produced large amounts of charred debris that ended up in the ACT's water sources (Dovers et al. 2005, p.11). The overall effect was that water quality in the ACT was greatly compromised. The ACT's Environment Commissioner has explained:

> Water quality was good. Before the fires, the whole catchment was typically in good condition. The soil and the whole vegetation were burned, and that made the soil very loose. Then we had big storm, in March and April, and all the loose soil went into the dam, and the water became undrinkable (Interview with Rosemary Purdie, 15 December 2005, Canberra).

After the fires because of the increased impurities, ACTEW had to increase the amount of chlorine in the water. Chlorination was one of the short-term effects of the fires. Other effects were temporary cuts in water supply to homes and offices and temporary suspension of the use of Bendora Dam water. The effects of the fires however had even longer-term implications. The capacity of the Cotter catchment, so integral to the water supply function of the ACT, to recover is unknown. To remedy that, ACTEW has instituted a catchment recovery project at a cost of $1.2million in conjunction with the Australian National University. Aspects of this scheme include an online event monitoring hydrological and hydrodynamic modelling, vegetation recovery and research (ACTEW, 2005a, p. 23)

Bigger capital works have followed in trying to build the necessary infrastructure to create barriers necessary to prevent sediment entering the water supply system. A $40 million investment had to be made at the Mount Stromlo WTP by adding some filtration plants to aid in the bringing the water standards up to drinking quality (ACTEW, 2005a, p. 20).

AN OVERVIEW OF THE ACT'S WATER REGULATORY CHALLENGES

From the foregoing discussion, there emerge several challenges that regulatory policy aims to deal with. In response to these, the ACT Government has promulgated some laws to deal directly with those.

Protecting public health

Drinking water is closely related to the state of the natural world and needs good handling to ensure public health. The *Public Health Act 1997* (ACT Government, 1998a) and the Drinking Water Quality Code of Practice(DHCC, 2000) are the main laws in this regard.

Protecting ecosystems

The *Water Resources Act 1998* (ACT Government, 1998b) authorises Environmental Flow Guidelines (Environment ACT, 1999) which define the method by which water is allocated to the environment. The *Environment Protection Act 1997* (ACT Government, 1997) regulates environmental discharges.

Demand control

Several approaches including tariffs, information, water restrictions and plumbing regulations are used to ensure that the ACT's available water resources are not abused. The Murray-Darling Basin Council also prescribes the amount of water that the ACT may divert.

Quality in service delivery and consumer protection

Since ACTEW is a monopoly, there is a need to ensure that customers are protected and that ACTEW respects the details of their contracts.

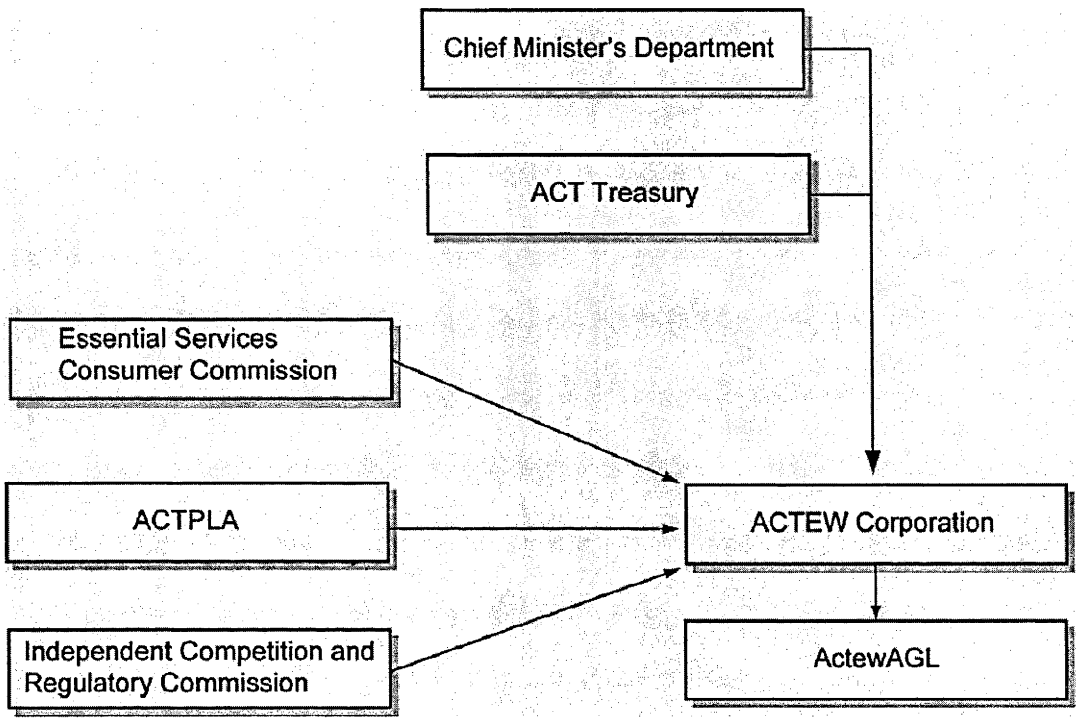
Ensure adequate investment in infrastructure

While the regulatory system looks to protect consumers, it also looks at ensuring that the provider can stay commercially viable to ensure continued supply and invest in the necessary infrastructure. The tariffs ACTEW charges are meant to ensure this.

OVERVIEW: THE ECONOMIC REGULATION REGULATORY SPACE

Economic regulation in the ACT is effected through the *Utilities Act 2000*. It sets up the Independent Competition and Regulatory Commission, Essential Services Consumer Council and outlines the role of the ACT Planning and Land Authority. All these three agencies are designated regulators for the various components of economic regulation of water in the ACT. This regulatory framework was created in response to the COAG Water Reform Framework.

Figure 5: Current Economic Regulatory Space



The ICRC is the economic regulator that sets water tariffs. The Essential Services Consumer Council oversees customer welfare. ACTPLA is the safety and technical regulator. The Treasury and the Chief Minister's Department are both shareholders in ACTEW. ACTEW is the holder of the drinking water licence. ActewAGL, as ACTEW's subcontractor, operates and maintains the water and sewerage infrastructure network on behalf of ACTEW.

ACTORS

There are several other important organisations in this regulatory space. These, including their interests, are outlined in the following section.

INDEPENDENT CONSUMER AND REGULATORY COMMISSION (ICRC)

The ICRC was founded in 1997 established under section 5 of the *Independent Pricing and Regulatory Commission Act 1997*. The ICRC replaced the Independent Pricing and Charges Tribunal, IPART. IPART was itself a successor to the short-lived ACT Energy and Charges Commission, formed and then disbanded in 1997.

The ICRC is an independent regulatory commission. Its mandate covers price direction investigation and arbitration. Before the ICRC can make price determinations, the ACT Treasury has to give the terms of reference that set out the Government's agenda. To date, the ICRC has performed four price determinations. These were in 1997-98, 1998-99, and 1999-2000, setting pricing for the years 2000 until 2004. In 2003 the ICRC began a process that culminated in the price determination that will cover the period 2004-08.

ICRC has three commissioners. The senior commissioner is full-time. The other two commissioners sit when needed. All commissioners are appointed by the Government but may not be removed for reasons other than malfeasance. The senior commissioner, despite several disagreements with ACTEW through the years, has enjoyed a long tenure. Licence fees finance ICRC. ACTEW, being the main licence holder in the water business, pays most of the costs of running the ICRC.

The objectives of the ICRC

As stated in section 11 of the *Utilities Act*, the ICRC has the following objectives:

> (a) To encourage the provision of safe, reliable, efficient and high quality utility services at reasonable prices;
> (b) To minimise the potential for misuse of monopoly power in the provision of utility services;
> (c) To promote competition in the provision of utility services;
> (d) To encourage long-term investment, growth and employment in utility service industries;

(e) To promote ecologically sustainable development in the provision of utility services;

(f) To protect the interests of consumers;

(g) To ensure that advice given to ICRC by the council, or the chief executive under Part 5 (Technical Regulation), is properly considered;

(h) To ensure the Government's programs about the provision of utility services are properly addressed;

(i) To give effect to directions of the Minister [of ACT Treasury] under section 19 (ACT Government, 2000a).

From the above list it appears that the objectives of the ICRC are the management of a monopoly. ACTEW Corporation is the only provider of water and wastewater services. Regulation is therefore needed to control pricing and manage the corporation's quality control.

THE ESSENTIAL SERVICES CONSUMER COUNCIL

The Essential Services Consumer Council is another part of the economic regulatory structure. Part 11 of the *Utilities Act* 2000 forms the ESCC. The ESCC came into being in July 2001, subsuming the functions of what had then been the Essential Services Review Committee. Section 170 of the Act assigns the following functions to the ESCC:

(a) To facilitate the resolution of complaints;

(b) To determine unresolved complaints under Part 12 of the Act;

(c) To ensure, so far as practicable, that utility services continue to be provided to persons suffering financial hardship;

(d) To protect the rights of customers and consumers under the Act;

(e) To advise the Minister and the ICRC on any matter relating to the Council's functions;

(f) To do anything incidental to any of its other functions.

In order to carry out its various mandates as stated above, the ESCC has the following four broad activities:

- Managing client hardship cases to ensure continuity of utility supply (function (c));
- Assisting in the resolution of issues and complaints raised by customers and consumers (function (a));
- Adjudicating complaints by customers and consumers against utilities under Part 12 of the Act (function (b));
- Addressing systemic issues and problems in the relationship between utilities and their customers/consumers, and proposing remedial courses of action to Government, the ICRC or the utilities (functions (a), (d) and (e))(ESCC, 2005).

Like the ICRC, licence fees, mostly accruing from ACTEW for water and wastewater services, gas and electricity finance the ESCC. Besides a full-time secretariat led by a case manager, the ESCC also has a fully-fledged call centre to handle telephone complaints.

Section 174 of the *Utilities Act* provides for ESCC's members. It specifies the positions of a Chairperson and a deputy Chairperson. The Minister may appoint only one member. The Minister has the task of ensuring that collectively the membership of the ESCC has certain core skills required to the running of the ESCC. The Act specifies the following skills as necessary:

(a) Assisting or working with people suffering financial hardship;
(b) Law;
(c) Business;
(d) Consumer affairs.

The council members are appointed from the community and the appointment process deliberately seeks to balance the skills levels required by the Act. Such organisations as the ACT Council for Social Services (ACTCOSS) often contribute more than one member to the council. The current chairman of the ESCC and another ordinary member are ACTCOSS members.

ACT PLANNING AND LAND AUTHORITY (ACTPLA)

The ACT Planning and Land Authority (ACTPLA) is a government agency organisationally located within the Department of Urban Services (DUS). Its mandate is wide-ranging, covering matters particularly relevant to land management, planning, and development. In water policy ACTPLA is the safety and technical regulator. ACTPLA do not directly monitor ACTEW's network service functions. ACTEW submits reports about their network functions to the ICRC, which the ICRC then passes to ACTPL. It is ACTPLA that makes assessment of ACTEW's compliance and makes pronouncements to the ICRC.

THE ACT TREASURY

The ACT Department of Treasury is, together with Chief Minister's Department, a voting shareholder of ACTEW. Jon Stanhope is the ministerial head of both, being the Treasurer as well as the Chief Minister. Being in charge of the Territory's financial management, the Treasury is also responsible for setting the targets that ACTEW has to meet towards some of the Territory's budgetary prerogatives. Before the beginning of each regulatory period, the Treasury is responsible for setting out the terms of reference for the ICRC to guide the price setting process. The Treasury is not a regulator, however, and does not make water tariff decisions for the ICRC.

OTHER ROLE PLAYERS

In the economic regulatory space there are other actors who, though not formally acknowledged in the *Utilities Act,* are important. These actors include the Commonwealth Parliamentary Services Department (formerly Joint House Department), which looks after the water and wastewater bills for Parliament House, and other institutional clients such as the Australian National University. Others are ACTCOSS and the Queanbeyan City Council.

ACT Council for Social Services (ACTCOSS)

ACTCOSS is a peak body of non-governmental organisations in the Australian Capital Territory. Its major objective is to represent disadvantaged members of the community in various forums, including making representations to the economic regulator.

The Queanbeyan City Council (QCC)

The QCC presents a unique challenge to water regulation in the ACT. The Council is located in the state of New South Wales, a different jurisdiction from the ACT. When Canberra was finally settled on as the site of the capital of Australia, New South Wales through the *Seat of Government Act 1909* (Cth) ceded its rights to the waters of the Molonglo and Queanbeyan Rivers with the understanding that the new capital would serve Queanbeyan with water. Queanbeyan looks set to grow when some Canberra residents settle there. It is conveniently close to the capital but considerably cheaper. The QCC depends entirely on ACTEW for its water supply. Yet, as ACTEW is an ACT entity, it cannot be regulated by anyone in New South Wales, nor in Canberra, due to section 100 of the Constitution.

LEGISLATION

Economic regulation is carried out on the basis of several pieces of legislation. In the following section we outline some of these.

THE UTILITIES ACT 2000

As a direct response to implementing the National Competition Policy in the Territory, the ACT restructured its water service delivery structure. Coming in 2000, the *Utilities Act* preceded the ActewAGL public-private partnership. Some of the stated objectives of the *Utilities Act* include setting up the ICRC, which has the objective of overseeing implementation of the Act (ACT Government, 2000a).

THE CONSUMER PROTECTION CODE

To guide the regulators and utilities in their approach to customer service, the ICRC promulgated the Consumer Protection Code in 2005. The Code outlines the basic rights of a customer or a consumer in relation to:

(a) Connection to, and disconnection from, a utility's network;
(b) The supply of utility services by a utility; and

(b) Access to product and service information; (ICRC, 2005a, p. 1).

TECHNICAL AND SAFETY CODES

Technical codes specify the requirements necessary to make the delivery of water and sewerage services both efficient and safe. They:

> Set out the requirements to protect the integrity of the utilities network and health and safety of the people who are involved in its operation. It also may set out the requirements for the protection of the property, the environment and emergency planning (ACT Treasury, 2004, p. 20).

There are several of these codes of practice in the ACT which are enforced by ACTPLA.

Water and Sewerage Network Boundary Code (December 2000)

This code defines the distances that have to be observed in between water utilities networks and a customer's premises, sewerage networks and a sewerage utility (ACT Government, 2000b).

Dam Safety Code

The Code sets the standards to be observed in the management of water stored in dams so as to prevent unsafe operation of dams that may cause environmental or other harm to people or properties (ACT Government, 2003).

Water and Sewerage Network (Design Code)

This code prescribes the minimum standards for the design, construction, operation and maintenance of water and sewerage networks in the ACT (ACT Government, 2000c).

Water Metering Code

This code sets out matters pertaining to water metering processes and procedures(ACT Government, 2000d).

THE *TERRITORY OWNED CORPORATIONS ACT* 1990

This is the Act that stipulates the establishment of corporate bodies owned by the Territory and setting out their governance and other accountability measures. It also sets out the objectives that are to be met by ACTEW Corporation and defining the status of the corporation's subsidiaries(ACT Government, 1990).

More importantly, the ACT Government as owner of ACTEW and other Territory-owned corporate entities including ACTEW's subsidiaries defines ACTEW's role in terms of acting within the framework of ecologically sustainable development. In this way, the Territory's largest employer is expected to act within a framework that respects ecological values.

THE SOCIAL REGULATORY SPACE

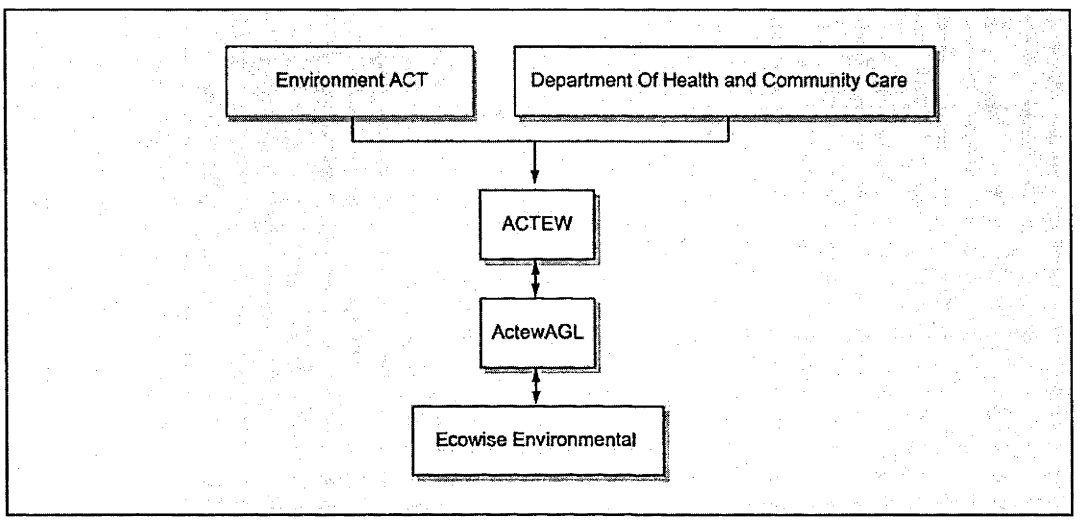
The social regulatory space manages the physical integrity of the water resources in the Territory. In this regulatory space, actors have a longstanding history of working together. The regulators are government departments or agencies, which have always had a close working relationship with ACTEW in the past, as government colleagues. Water restrictions, environmental flow guidelines, environmental water quality and the drinking water quality among others are located in this space. Figure 6 shows the actors in the network.

ACTORS

ACTEW is the licence holder for the relevant licences in this regulatory space. These licences include the Environmental Regulations Licence, Licence to Take Water and the Drinking Water Utility Licence. The Licence to Take Water regulates ACTEW's rights to take water from sources and release some of it as environmental flows. The Environmental Regulations Licence subjects ACTEW to environmental regulation with respect to its operation of the Lower Molonglo Water Quality Control Centre. Allocated by Environment ACT, this licence also makes ACTEW subject to New South Wales Environmental

Protection Agency. ActewAGL is the contractor for ACTEW in these activities. The Drinking Water Utility License authorises ACTEW to operate its drinking water functions under the *Public Health Act*. It is under the Act that the Drinking Water Quality Code of Practice falls. The other actors are spelt out in the following section.

Figure 6: The ACT Social Regulatory Space



ENVIRONMENT ACT

Environment ACT is organisationally located within the Arts, Heritage and Environment sector in the Chief Minister's Department. The Territory's Chief Minister, Jon Stanhope, heads the CMD. Environment ACT is a government agency responsible for managing the ACT's natural resource base. Included here is the Cotter River catchment and administering the water licence that allocates ACTEW the urban supply water resource, (ACTEW, 2005b, p. 3). Environment ACT also houses the Environment Protection Authority whose function is to oversee the quality of the Territory's water.

DEPARTMENT OF HEALTH AND COMMUNITY CARE (DHCC)

The Department of Health and Community Care is the regulator of Canberra's drinking water quality. Within this department, the Health Protection Service is the regulator of drinking water quality. The director of the Health Protection Services oversees

implementation of the DWQCP, and liaises with ACTEW on a regular basis. The DHCC is responsible for other duties besides water regulation like community health, mental health, hospitals, the ANU medical school and Canberra Clinical School. Consequently the focus on regulation by this department lacks the sharpness of that of the economic regulators whose mandates are solely regulation. This is signified, for instance, by the fact that the department does not even have its own laboratory for conducting its own tests on water quality.

ECOWISE ENVIRONMENTAL

Ecowise Environmental is an ACTEW and ActewAGL owned subsidiary concerned with drinking and environmental water quality as well as environmental flows among others. Their objectives are to provide:

> Essential environmental monitoring and water resources assessment including scientific laboratory analysis, environmental data collection and water studies, aquatic ecology, water treatment consulting and geographic information systems for utilities and catchment management. It is Australia's largest provider of integrated environmental analytical, monitoring and consulting services (ACTEW, 2005a, p. 29).

Ecowise is a National Association of Testing Authorities (NATA) registered laboratory. NATA is a government endorsed provider of accreditation for testing facilities and also represents Australia in the OECD Good Laboratory Practice Working Group. The laboratory's services are offered throughout Australia and abroad. Being a NATA accredited laboratory, Ecowise is regularly exposed to rigorous examinations of their standards and laboratory practices. They also regularly update their own international compliance capabilities as well, and regularly gain accession to such internationally acclaimed standards as International Standards Organisation.

COORDINATING STRUCTURES

The ACT's water policy structures are obviously fragmented. There are more than ten formal regulatory institutions while there is basically one major regulated entity, ACTEW Corporation. Over and above the ACT level institutions, there is the Commonwealth,

regulator of the National Water Initiative requirements. Two structures were formed to deal with the challenge of coordinating diverse bodies of policy actors. These are the Senior Executives Water Coordination Group and the Chief Executive Water Group. The Senior Executives Water Coordination Group is tasked with the duty to:

> Keep track of all actions under Think Water Act Water and ensure that all organisations responsible for implementing the strategies are undertaking their roles effectively (Environment ACT, 2004, p. 35).

The SEWCG meets every three weeks to carry out its coordinating functions. Its members include ACTEW, Chief Minister's Department, Department of Health and Community Care, ACTPLA and the Department of Treasury. The role of the group is well thought of by those involved. The health regulator expresses a representative perspective:

> I must say it is one of the few working groups across government that I have been on that I find very, very, useful. I mean they are all useful to some extent but this one has worked really, really well. It has broken down some barriers between agencies, it has allowed some fairly open and at times robust debate on issues that might as well have stayed inside one department, we have dealt with fairly strategic issues such as water rights, we dealt with issues of water restrictions, greywater systems (Interview with John Woollard, ACT Health, 22 November 2005, Canberra).

While this group appears as though it has everyone in Canberra's water policy sector as a member, it does not have the ICRC or the ESCC. Apparently this is not an oversight, but recognition that the ICRC is an independent body. According to Ken Horsham, the ICRC has been left out because:

> It's not subject to direction. If they are making a review for instance, ACTEW can put a proposal but once they make a decision, that decision is binding on government. So the Government can't direct it (Interview with Ken Horsham, ACTEW, 23 November 2005).

The group is more like a reference group. Many of the ACT's important documents with regard to wider water policy management issues have passed through the group. For

instance this group discussed 'Rainwater Tanks Guidelines', 'Greywater Guidelines' and 'Think Water Act Water'.

OTHER ROLE PLAYERS

There are other actors within this regulatory space who from time to time contribute to policy formulation or provide professional services to ACTEW, ActewAGL or the regulators.

Cooperative Research Centre (CRC)

The CRCs are an Australian government and industry-sponsored initiative that reside in university campuses. The CRCs have several research interests including coastal and catchment hydrology and water quality and treatment. The CRC chief executives have in the past coordinated their response to national initiatives such as the COAG Water Reform Framework. The CRC Freshwater (now E-Water) with a base at the University of Canberra has contributed to Canberra water policy by acting as consultant to the ACT such as when they reviewed the first environmental flow guidelines and came up with a new set of guidelines (Environment ACT, 2006).

The ANU Centre for Resources and Environmental Studies (CRES)

CRES has a critical mass of researchers in the environmental sciences, water and resource, ecological and economic matters. CRES staff has in the past acted as consultant and adviser to the ACT Government. Through their researchers, CRES have also been able to comment from time to time on the price setting approaches of the ICRC. While it is not possible to quantify the effect of such comments on the outcomes of the decisions, their well-researched and critical nature means they are difficult to ignore.

LEGISLATION EFFECTING SOCIAL REGULATION

The social regulatory framework is embodied in numerous legislative instruments.

ENVIRONMENT PROTECTION ACT 1997

This Act aims at prevention of environmental harm. It also looks to control the amounts and types of discharge into the air, water and land by specifying ambient air and water standards. ACTEW's licence for environmental protection places obligations on ACTEW to comply with quality standards for water discharged from the Lower Molonglo Water Quality Control Centre (ACT Government, 1997).

THE PUBLIC HEALTH ACT 1997

The *Public Health Act 1997* is the ACT's major legal document covering drinking water regulation. The Act makes provision for design and implementation of a Drinking Water Quality Code of Practice. It also covers the conveying, treatment and distribution of water for public purposes (ACT Government, 1998a).

THE DRINKING WATER QUALITY CODE OF PRACTICE (DWQCP)

The DWQCP came into effect in 2001. It sets the standards for drinking water that ACTEW has to meet. It also sets the processes to be followed by both ACTEW and the regulator when dealing with A water quality crisis and makes provision for the enrolment of doctors to help identify gastro related illnesses in an event like the presence of E.coli, cryptosporidium or Giardia in the water (DHCC, 2000).

THE WATER RESOURCES ACT 1998

The Act is part of the response to COAG's requirements for states and territories to ensure supply of water to the ecology, facilitate trade in water, institute consistency of policy throughout the jurisdictions on pricing and separating water property rights from land title. The *Water Resources Act* is a set of rules. Because rules can sometimes be unclear and complex, they are given clearer meaning by the EFGs, which are a set of standards. Because it covers such a wide variety of activities, the *Water Resources Act* has also spawned the *Think Water Act Water* document that outlines some of the ACT's major policy and regulatory challenges, how they are to be achieved and implemented, and the dates by which they are to be carried out.

ENVIRONMENTAL FLOW GUIDELINES

With regard to the task of establishing permanent water allocations to the environment, the COAG communiqué on water reforms gives states and territories the following tasks:

> To establish a sustainable balance between the environment and other uses, including formal provisions for the environment for surface and groundwater consistent with the ARMACANZ/ANZECC national principles (NCC, 2001, p. 42).

Environmental Flow Guidelines (EFG) is a set of standards created to guide the allocation of water to the environment.

THINK WATER ACT WATER

The *Think Water Act Water Strategy* is the ACT's blueprint for water resources management. The strategy was derived from community consultations:

> So this is actually a piece of legislation, so somebody, anybody in the Assembly can ask what are you doing about this ... how is it going ... this is actually part of the *Water Resources Act* (Interview with Stuart Chapman and Karen Aguilera, 2 November 2005, Canberra).

Through *Think Water Act Water* the ACT Government plans to do the following:

- Ensure the ACT and region has a secure and reliable water supply for current and future needs;
- Continue to protect the ecological and social values of our waterways for our needs and the needs of future generations;
- Take account of climate change, including scientific predictions for higher temperatures and lower and variable rainfall in assessing the future sustainability of our resources;
- Improve urban, housing and landscape design to fit with water resource constraints;
- Ensure water supply and management principles are consistent with protecting public health (ACT Government, 2004a, p. 12).

One of the strategy's more aggressively pursued objectives is to increase water efficiency in the Territory by reducing the amount of water used by 12 per cent in 2013, and a further reduction of 25 per cent in 2025. These targets are to be gained through the following:

- Water efficiency measures
- Sustainable water recycling
- Use of storm water and rainwater (ACT Government, 2004a, p. 3).

THE *WATER AND SEWERAGE ACT 2000*

The *Water and Sewerage Act 2000* sets standards for plumbing in the ACT. In line with the Government's aim to control water demand in homes and businesses, the Act encourages the use of the following plumbing items, which are approved as water efficient:

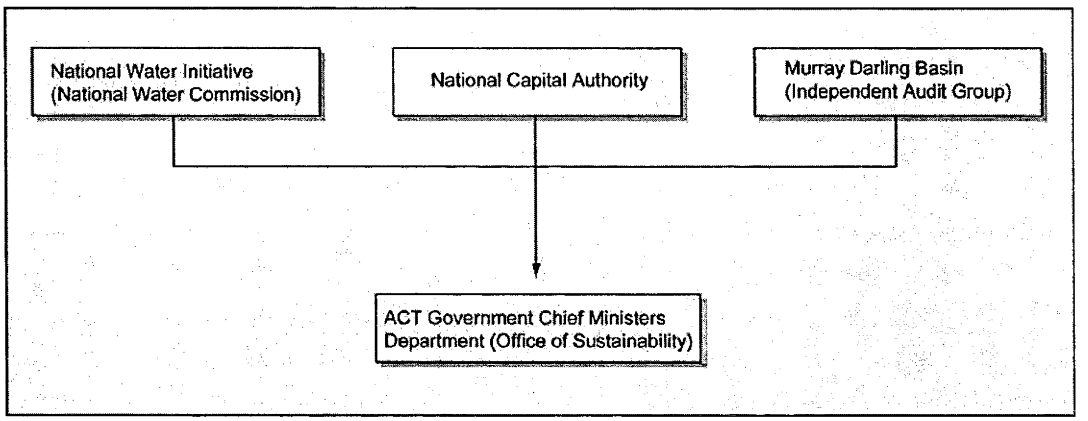
(i) A shower; or
(ii) A tap inside a building; or
(iii) A sink.

The ACT includes penalties for contraventions, though it exempts work done before 2005.

REGULATORY FEDERALISM

Through section 100, the Australian Constitution explicitly states that states and territories are to be the primary managers of their water policy sectors. Yet environmental degradation of rivers and waterways is impervious of state and territory borders. The ACT's water policy has not escaped the growing influence of Commonwealth interest and intervention. Regulators include the National Water Commission, Murray Darling Basin Commission and the National Capital Authority.

Figure 7: Regulatory Federalism Arrangements for the ACT (2006)



THE MURRAY-DARLING BASIN COMMISSION

The MDBC is one of the important bodies in the regulation of water in the ACT. It is particularly important in setting the amounts of water to which the ACT has access. The MDBC includes the Commonwealth Government, the ACT, Queensland, South Australia, Victoria and New South Wales. Its objectives are:

> To promote and coordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin (http://www.mdbc.gov.au/subs/annual_reports/AR_2003-04/htm/part1-initiative.html, Accessed 12-03-2006).

The ACT Government joined the MDBC in 1998, signing a Memorandum of Understanding (MoU) with the MDBC States and the Commonwealth. The major import of the MDBC is to limit the amount of water that individual jurisdictions may divert from the Murray-Darling system. In the MoU, the ACT makes a commitment to:

> Participate in the program to limit diversions from the Murray-Darling River System, known as Cap on Diversions, following the completion of discussions with the Commission and the Independent Audit Group to determine the detailed form of ACT's participation (MDBC, 1992, p.102).

By signing the MoU, the ACT thus put up the possibility that the Cap on extractions equal to 1993-94 diversion levels would bind it, as is the case in the other jurisdictions.

The Independent Audit Group

The Independent Audit Group (IAG) of the Murray-Darling Basin is a two-person body in charge of assessing the compliance of jurisdictions to the MDBC Capping requirements. The members of the IAG are Wally Cox who chairs the group and Paul Baxter, the ICRC commissioner. Their first annual report came in 2005. It assessed compliance with the cap in 2003-04.

THE NATIONAL CAPITAL AUTHORITY (NCA)

The National Capital Authority is the agency in charge of water in Lake Burley Griffin and adjoining national land including Parliamentary Triangle, the space on which Parliament House and the High Court are located, as are the headquarters of various Commonwealth departments. The *Lakes Ordinance Act 1976* enables the NCA to control Lake Burley Griffin, the management of which includes maintenance of the character of the national buildings in the parliamentary triangle.

THE NATIONAL WATER INITIATIVE

The National Water Initiative came into being in 2004. The major elements of the initiative include the following:

i. Water Access Entitlements and Planning Framework;
ii. Water Markets and Trading;
iii. Best Practice Water Pricing;
iv. Integrated Management of Water for Environmental and Other Public Benefit Outcomes;
v. Water Resource Accounting;
vi. Urban Water Reform;
vii. Knowledge and Capacity Building; and
viii. Community Partnerships and Adjustment.

In order to implement the NWI, COAG set up the National Water Commission, which, among others, administers the Australian Water Fund. The NWC takes over the role that used to be played by the National Competition Council in evaluating the effectiveness of policy implementation.

FEDERAL REGULATORY LAWS

Regulation of water in the ACT is not entirely a matter for the Territory's Legislative Assembly and its economic and social regulatory actors alone. In recent years the Commonwealth and other non-ACT actors have taken on an increasingly prominent role in managing regulation in the Territory. In this section we outline some of the important federal regulatory instruments.

THE *SEAT OF GOVERNMENT ACT 1909*

The *Seat of Government Act 1909* is the Commonwealth law that sets up the Australian Capital Territory, simultaneously outlining the surrender by New South Wales of the land upon which the capital sits. Among its provisions is the condition that New South Wales residents surrender their claim to the waters of the Queanbeyan and Molonglo rivers to the Commonwealth.

THE *CANBERRA WATER SUPPLY (GOOGONG DAM) ACT 1974*

Reflecting growing scepticism about dams, the Googong Dam was the last major dam to be constructed in the ACT. This dam is located in New South Wales for the purposes of providing water to the ACT and Queanbeyan. Though entirely in the physical environs of NSW, the water in the dam belongs to the ACT. Being in a different jurisdictional location, however, the dam is not entirely in the Territory's control in terms of catchment or water quality management.

WATER EFFICIENCY LABELLING AND STANDARDS ACT 2005

The *WELS Act* came about in 2005 as part of the ACT's responsibility under the National Water Initiative. The objectives of this Act are as follows:

(a) To conserve water supplies by reducing water consumption;

(b) To provide information for purchasers of water-use and water-saving products;

(c) To promote the adoption of efficient and effective water-use and water-saving technologies.

The essence of the scheme is to enforce water saving behaviours through providing information on appropriate water saving devices. The *WELS Act* assumes a lack of information to users about what the appropriate water-efficient devices are. The Act provides assistance by labelling water use devices to show their efficiency in water use.

The Water Services Association of Australia previously provided the labelling service. However, the Department of Environment and Heritage (DEH) has since taken over this task. Through this Act, the Commonwealth attempts to standardise performance levels of appliances throughout all Australian jurisdictions by giving the Act some legal force. States and territories are left to appoint their own regulators of the scheme.

CONCLUSIONS

This chapter had multiple objectives: to outline the evolution of the water network in the ACT; highlight the political economy of the water policy sector; outline the new institutional structure for water management within the Territory; and also indicate the federal influences in ACT water policy.

The water policy community in the ACT has a long history. While in1988 the ACT Government gave up day-to-day control of water policy, it did so without breaking up the longstanding policy community that has managed water in the Territory. Maintaining the water policy community ensured that consensus is generated between members of the policy network. ACTEW's status as a government-owned corporation gives government continuing influence over policy-making in water.

New institutions were formed to manage social and economic regulation. Social regulators have a longstanding history of working with ACTEW and its predecessors in managing water in the ACT. While the economic regulatory structure is new, some employees in the organisations were recruited from existing organisations in the ACT. Furthermore, ownership of ACTEW by the Chief Minister's Department and the Treasury means that they continue to set the priorities for ACTEW.

What is also worth noting is the growing importance of the Commonwealth Government in regulatory policy-making in the ACT. While the Commonwealth always played a role in regulating water, its role has taken on a new prominence. From setting standards for drinking water quality to financing selected projects, the Commonwealth has assumed a greater role as an agenda-setter for national water policy.

The ACT's water network infrastructure of four dams and two of water treatment plants was bought from the Commonwealth. The infrastructure, however, does not service a significant agricultural base. While the ACT has a statutory obligation to supply the City of Queanbeyan in New South Wales, a complicating factor to water management in the ACT is that the Googong Dam, with half the storage capacity is in New South Wales.

6 ECONOMIC REGULATION IN THE ACT: MANAGING A CONTESTED REGULATORY SPACE

Until 1997, public ownership was the way the Commonwealth Government and subsequently the ACT Government regulated the provision of water. Government departments provided water in the amounts, prices and quality determined by ministers, and ACTEW or its predecessors. With the advent of the COAG water reforms, the ACT Government changed the structure of its utility services by corporatising water supply. The ACT's other response was to institute the Independent Pricing and Regulatory Commission (IPARC) in 1997. IPART later became the Independent Competition and Regulatory Commission (ICRC).

As it is used in the ACT, economic regulation gives the appearance of a regulatory space that has been 'lost' to ACTEW, the ACT Government, and ActewAGL. The ICRC is an independent regulatory commission whose decisions are not subject to ministerial control. Furthermore, actors within the ACT's water regulatory space respect the ICRC's independence. The manifestation of this is that the ICRC has been left out of coordinating arrangements in the ACT that deal with water. While these bodies include virtually all water management institutions in the ACT, the ICRC has been left out as a sign of its independence[19].

The ACT Government, through the Treasurer and the Chief Minister, is the sole shareholder in ACTEW and needs money from ACTEW to achieve some of its budgetary objectives. The ICRC sets water tariffs in the ACT and often rejects ACTEW's many requests to increase tariffs.

Yet government, through ACTEW's two voting shareholders, the Treasury and Chief Minister's Department, relies on ACTEW's income raising capacity to raise public

[19] Whereas government appoints members of the ICRC, it does not unduly influence the decisions they make. The commission is therefore 'independent' in so far as government respects the decisions it makes.

revenue. With ACTEW and ActewAGL the two departments have several mechanisms of negating some of these regulatory constraints to support ACTEW's profit motives. Such tactics, while allowing ACTEW to appear to be 'regulated' by the ICRC, have the overall effect of allowing ACTEW to charge unregulated prices in other services.

Some of the regulatory standards in force were designed by ACTEW when it was a self-regulating government department. These standards, especially those for the maintenance of the water infrastructure network, ensure that ACTEW provides arguably low network standards. Further, the ACT Government protects ACTEW's financial position by ensuring that it does not suffer any financial disadvantage from non-payers. The Government similarly treats unpaid water bills as community service obligations: ACTEW does not cut off anyone's supply. Because water is by legislation a rateable commodity, ACTEW does not lose any revenue in the event that tenants do not pay their bills.

This chapter commences with a brief history of the economic regulatory space in order to explain the genesis of the current apparently contested working relationships characterising economic regulation. Thereafter the water tariff setting processes is described. Some aspects of the processes include demand forecasts estimating the regulatory asset base and public hearings are closely analysed. These processes will reveal the contested nature of economic regulation in the ACT. A closer look at the administration of the water abstraction charge, wastewater tariffs and bulk water pricing reveals, however, that ACTEW is actually unregulated in these areas and it is possibly through the mentioned activities that it shores up its revenue position otherwise diminished due to the stringency of regulation elsewhere. The chapter then analyses the administration of safety and technical matters in the ACT. What emerges is that by and large ACTEW satisfies its requirements under this form of regulation.

The regulators complain of historical realities that allowed ACTEW to set its own standards that were arguably not robust. Lack of robust standards arguably meant that the regulator lacked capacity to criticise ACTEW if they need to. Thereafter the chapter assesses the administration of customer services standards. This regulatory aspect includes managing

hardship complaints by ACTEW's customers, systemic problems with the infrastructure network and mediation between ACTEW and its customers. Overall this section demonstrates other strategies through which the economic regulation network maintains order and stability. One of these approaches is through community service obligations, an approach through which the ACT Government foregoes income to pay for citizens who failed to pay ACTEW.

CONTESTATION IN THE ECONOMIC REGULATORY SPACE

Economic regulators ensure that ACTEW carries out its business with integrity. They work to ensure that ACTEW does not charge excessive prices or provide an inferior service. The ICRC's price setting mechanism and its licensing compliance processes are geared towards ensuring that ACTEW has actually done what it promises to do. Such commitments include attaining efficiency measures or investing in projects that it had promised to invest in or was required to invest in the previous price-setting event.

The ESCC's mandate of customer service regulation entails adjudicative processes; imposing sanctions on ACTEW for interruptions to water supply; or making ACTEW incur the cost that it would otherwise transfer to customers. Unlike social regulators economic regulators, perform most of their jobs by investigating ACTEW's prior actions or inactions and duly penalising if necessary.

In economic regulation, lack of conformity with rules defines non-compliance. Lack of compliance is then, met with financial penalties. For the ESCC, a breach of customer expectations is met with penalties stipulating that such a customer be refunded a $ 60 amount for each day that ACTEW has failed to restore supply. Economic regulators are independent. While government appoints the members, they sit outside formal government structures and therefore do not have many informal interactions with the regulated entities.

REGULATOR AS INTERLOPER: THE ICRC AS OUTSIDER

In 1988, ACTEW lost its regulatory power to an independent regulatory commission. This is said to have been an irritant for ACTEW's first CEO Mike Sargent. He considered it an example of contradiction in government policy. In his opinion the requirement that ACTEW act commercially was not consistent with the regulation of the corporation (Donovan, 1999, p. 265). Sargent's view was not disinterested. The opposing argument is that water remains a natural monopoly and therefore must be regulated.

The idea that the ICRC is a troublesome outsider began then and has persisted. When the ICRC was set up, Paul Baxter, current senior commissioner and founding commissioner of the ICRC, initially took advice from New South Wales' Independent Price and Regulation Tribunal although he was based in Canberra. ACTEW's criticism was that Baxter was an unknown beholden to outside influences. His initial attempts at introducing regulatory discipline to a previously self-regulating utility were met with hostility and dismay. As explained by ACTEW's historian:

> Nor did the regulator who had no direct association with ACTEW operations or its customers endear himself to senior staff by constantly suggesting that the organisation could continue to make economies (Donovan, 1999, p. 265).

ACTEW felt that the Government was taking a profitable part of their business from them. Paul Perkins, then deputy CEO of ACTEW, has fond memories of ACTEW as a self-regulator:

> In those days, we were running a pretty clever organisation. We were not only good environmentally; in the view of the people we were bloody good commercially. When we gave all that back, it was obvious to them we were making a million dollars a year on the regulatory functions. Government of course sees it as a loss-making thing, but we also structured it so that we made money out of it (Interview with Paul Perkins, 15 December 2005, Canberra).

The view of the ICRC as an outsider still remains although ACTEW has now learned to exist with independent regulation. However, the corporation does its utmost to keep the

regulator at arms length. A letter jointly signed by both Michael Costello and his ActewAGL counterpart John Mackay to the Treasury concluded unequivocally:

> We recognise it is not possible to legislatively dictate attitudes, but we do have a concern that some regulatory staff have difficulty balancing regulatory intervention in the public interest on the one hand and an apparent desire to micromanage the commercial operations of our utility businesses on the other hand (Costello and Mackay, 2004, p. 6).

The ICRC's relationship with ACTEW is further complicated because economic regulation imposes costs on the corporation. Licence fees from ACTEW and other utilities finance ICRC. To gain compliance, ACTEW set up a regulatory compliance unit. ACTEW also has a Strategic Business Unit whose mandate is to look after the issue of implementing the Utilities Management Agreement. ActewAGL's licence fees in 2004 to the ICRC were listed as in table 3:

Table 3: ACTEW Annual License Fees

Service	Cost
Electricity Networks	$227,800.00
Gas Networks	$199,300.00
Water & Sewerage	$203,800.00
Retail Electricity	$296,000.00
Retail Gas	$138,100.00
Total	$1,065,000.00

Source: Costello and Mackay (2004, p. 5).

ACTEW's regulatory compliance costs could be higher than the fees shown. Such costs would include the Strategic Business Unit and the costs paid to consultants to value its assets every four years or so.

TOO MANY STICKS, TOO FEW CARROTS

The ICRC exists to make decisions. These decisions are not always to ACTEW's liking. ACTEW does not have a lot of recourse outside of the regulatory process. The economic regulator has no mechanisms other than refusal of ACTEW's valuations (imposing its own

in the process), or to revoke ACTEW's licence. Given ACTEW's monopoly and political standing in the ACT, the latter option is not a possibility. The lack of a wide range of 'sticks and carrots' makes life difficult for the economic regulator:

> Currently the sanctions available in relation to compliance with the licensing regime are limited to the contravention provisions under section 47 (punishable on conviction by a maximum penalty of 3,000 penalty units, and an additional 600 penalty units for each day in which the contravention continues), and revocation of a utility licence under section 42. The circumstances in which the Commission may revoke a utility licence are highly specific and, with the exception of the provision for revocation for non-payment of a licence fee, represent extreme circumstances (Baxter, 2004, p. 4).

ACTEW is a monopoly. Licence revocation would be impracticable:

> There are also significant practical difficulties associated with the revocation of a utility license, particularly where there is only one licensed provider of the relevant utility service (as is the case with gas transmission and distribution, electricity distribution and water and sewerage services). This makes revocation an unwieldy enforcement mechanism (Baxter, 2004, p. 5).

Available sanctions represent two extremes:

> There is an absence of interim disciplinary measures and feasible legal sanctions available to the Commission by which inadequate or unsatisfactory levels of compliance could be addressed without recourse to prosecution. To a considerable extent, this leaves the Commission without recourse against a utility whose performance or compliance with licence conditions is unacceptable but does not meet the thresholds for contravention or revocation of a licence (Baxter, 2004, p. 5).

Customer service regulation provides a further difficulty for ACTEW. In a letter to the ESCC, Ian Macara, ActewAGL's legal counsel raises some points that demonstrate the inherent tension in the ESCC's implementation of its mandate with ACTEW. If the ESCC in its mandate takes steps that might impede some of ACTEW's business operations because of customer complaints, ACTEW might forgo income. In response to a query from the ICRC on a complaint, ActewAGL's legal counsel, Ian Macara, wrote:

> Your letter of 19 February indicated that even in a case where ActewAGL's records flatly contradict the basis of a complaint by a customer, the complainant has the right to have the facts of her case tested through the presentation of evidence and rebuttal of ActewAGL's evidence. It is respectfully suggested that where the evidence appears clear-cut, it may represent good administration for the ESCC to give a right of reply to the customer via correspondence rather than at a hearing (Macara, 2004, p. 15).

Macara sees no sense if the ESCC entertains every case that comes before them. To ActewAGL, the ESCC would do well to dismiss some of the cases that it deemed as absolutely lacking in credibility, because:

> Otherwise, if in every case the ESCC believes that the customer has the right to present evidence and attempt to rebut ActewAGL's evidence at a hearing, then the ESCC is rendering superfluous paragraph 189(1)(1) of the Utilities Act. That paragraph provides, so far as relevant, that the ESCC may dismiss a complaint without further consideration if satisfied that the complaint is misconceived or lacking in substance. It is respectfully submitted that the legislature included the provision referred to, because the legislature believed it would have a use (Macara, 2004, p. 15).

There are practical problems with the ESCC's mandate. In the presence of aggrieved customers, the ESCC has to be seen to be taking ACTEW to task. It may also be difficult to ascertain whether ActewAGL's own interpretation is correct; without listening to customers, the ESCC may have no means to understand the essence of the problem adequately. On the other hand, the complaints process presents the possibility of loss of income for ACTEW from disruption of services where customers complain about ACTEW's activities and end up enforcing a hold-up of the corporation's operations. Such a case occurred when one customer disliked the presence of two poles in her backyard, and complained to the ESCC. While awaiting adjudication, ACTEW did not proceed with the work for two weeks, incurring financial losses in the process. Notwithstanding, ACTEW's suggested solution to the *Utilities Act* review process seems like a recipe for more friction:

> We believe there would be an advantage in imposing a modest complaint lodgement fee upon complainants, of, say $100, and a higher fee where the complainant requires a hearing before the ESCC, both fees being refundable where the outcome is in any way in favour of the complainant (Costello and Mackay, 2004, p. 4).

Not only does the suggestion above aim at limiting customer scope for complaints, it would appear that it would make the process more expensive and potentially more litigious.

WATER AND WASTEWATER PRICING IN THE ACT

To issue a price direction, the ICRC first obtains terms of reference from the Treasurer. These set out the Government's fiscal and other objectives. Once terms of reference are issued, the ICRC calls for ACTEW to submit its demand forecast for the following four years. The ICRC's senior commissioner clarifies the issues and relationships that underlie this process:

> The mandate of the ICRC broadly is a statutory authority, which is independent. We don't report to the Government in terms of pricing. We make decisions and those decisions stay, for electricity, gas, water, buses, taxis ... unlike other countries where regulators have to give their reports to the Government and the Government makes the decisions. We make the final decision on this matter. The ICRC is completely independent, with a staff of ten (Interview with Paul Baxter, 25 November 2005, Canberra).

Volumetric charges for water were introduced in 1994 at the ACT Government's initiative. Water began to be regulated by an independent commission in 1997 when the IPART, the predecessor to the ICRC, was established (ICRC, 2005b, p. vii). When considering the tariff structure for ACTEW, the ICRC has to balance several often-competing issues. They try to balance the demand and availability of water substitutes, water reuse possibilities and community service obligations. Added to the list are the environmental impacts of water use at certain tariff levels. Overall, in the ACT, water pricing performs two major functions: sending signals for water scarcity and ensuring cost recovery for ACTEW(ICRC, 2006b, p. 4-5).

THE PRICING SYSTEM AS A THEATRE OF DISQUIET

The ICRC releases price directions for ACTEW every four years after a consultative process that typically takes three months. The price directions are the basis for water tariffs.

The price paths thus concluded now continue for four years (ICRC, 2006b, p. 1). Initially the price paths lasted only a year, and then five years.

Setting tariff structures for ACTEW comprises several activities. These activities include the ICRC releasing an issues paper, and then calling for public submissions, which are followed by public hearings. Public hearings include ACTEW's defence of their demand for valuations of their infrastructure, after which the ICRC releases a final price direction.

The ICRC has adopted the 'building block methodology' for water and wastewater pricing. The objective of the methodology is 'to calculate the efficient levels of costs which will become the notional or total revenue requirement for ACTEW' (ICRC, 2004d, p. xv). The methodology estimates the total revenue requirement for ACTEW in the following price path by making a series of estimations on how much it will take the corporation to produce its services during the ensuing four years. A simplified equation of that process appears like this:

> Total revenue requirement = efficient operating costs + return on capital + return of capital (ICRC, 2004b, p. 18).

Once a price path is determined ACTEW is allowed to charge tariffs within the determined price cap subject to the ICRC's approval (ACTEW, 2003). The price set is meant to allow ACTEW to recover operating costs associated with the water and wastewater services. The process aims to recover costs associated with the capital expenditures ACTEW makes.

ACTEW may adjust its water tariffs within the set price cap in any of the ensuing four years after informing the ICRC. Resetting tariffs can be for any of the reasons associated with 'pass through events'. 'Pass through events' are unforeseen circumstances that were not factored into the initial price direction. They add to ACTEW's costs of business. Conditions necessitating a 'pass through event' for ACTEW include changes in tax events, major natural disasters, subventions to payment and even acts of terrorism (ICRC, 2004b, p. 12).

Once the ICRC releases its issues paper ACTEW is required to draft a proposal for its anticipated cost structure for the forthcoming years. This process includes estimations of the demand for ACTEW's services in the forthcoming four years, its estimations of the current infrastructure (the regulatory asset base), the costs on operation of services in the following four years (OPEX) and the weighted average cost of capital (WACC), which are the costs incurred in borrowing money for conducting business. These concepts as applied in the ACT are discussed fully in the *Final Report and Price Direction: Investigations into Water and Wastewater Prices in the ACT* (ICRC, 2003b).

The aim of this section is to show how ACTEW and the ICRC rarely come to agreement about these matters. Given that disagreements between regulators and corporations are not uncommon, it sets up the context in which ACTEW recaptures lost revenue opportunities due to regulation through other business activities beyond the scope of regulation, such as bulk transfers to Queanbeyan.

DEMAND FORECASTS

Forecasting demand is necessary to indicate the number of connections ACTEW will have to serve. Such a forecast has implications for the amount of money ACTEW will have to raise as capital and operating expenditures. The forecasts enable the ICRC to design a price cap that allows ACTEW to earn sufficient income on its investment. Typically, demand forecasts are as much an exercise in judgment as in economics. Factors influencing future demand are subject to future unknowns like drought, population growth and future income potentials of residents. Characteristically, the ICRC does not always agree with ACTEW's initial forecasts. As an example, in 2003 the ICRC queried ACTEW's previous forecast and urged it to revise its new forecast down in light of that:

> ... the growth rates of 1.35 per cent for water and wastewater customer number respectively that have been provided by ACTEW are below both the growth rates experienced in prior years, and those forecast in the subsequent years (ICRC, 2003b, p. xvii).

ACTEW's response was that the dip in customer growth was due to the 2003 Canberra bushfires that led to fewer people settling in Canberra. The ICRC, however, rejected ACTEW's explanation and suggested they revise the forecast. ACTEW, however, felt that:

> This analysis of customer growth in the wake of the January 2003 bushfires justifies ACTEW's customer number forecasts for 2003/04. A downward revision as proposed by the Commission is unnecessary (ACTEW, 2004a, p.28).

ESTIMATING THE REGULATORY ASSET BASE (RAB)

The regulatory asset base (RAB) is the infrastructure that ACTEW already has contributed towards water and wastewater services. Valuations of the RAB are about recognising the investment that utilities have previously made towards fulfilling their mandates. Whereas demand forecasts try to predict the future, valuations of the RAB attempt to adjust for past imperfections in the costing of water services. Valuation of the RAB is crucial to ACTEW's business objectives and the budgetary imperatives of its main shareholder, the ACT Government. ACTEW's managing director explains why:

> Obviously the valuation of our assets is absolutely crucial since we've determined the return of capital and therefore a large part of the revenue, the Commission you allow us to earn (Costello, 2004, p. 6).

In order to provide a valuation of the RAB, ACTEW usually hires private consultants. Typically with economic regulation, agreements between ACTEW and the regulator on the proper value of the RAB are rare. Variations in the valuations of the same asset base by the consultants of ICRC and ACTEW have been in the past significant. 2003 was no different. Meritec, ACTEW's consultants, arrived at a financial valuation of ACTEW's asset base of $1.8 billion. The ICRC's consultants' valuations of the same assets amounted to less than half-$866 million. ACTEW's perspective is that this is gross under-valuation by the regulator:

> When you apply it to water, the economic valuation because of historical under valuations there is a huge gap between the two ... I mean, the DORC[20] is [$] 1.8

[20] Short for depreciated optimised replacement cost. DORC represents the value given to the regulatory asset base to reflect the price it would take to procure comparable assets in the current term.

> billion, your economic valuation is [$] 866 million it's nearly half ... They should be closer (Costello, 2004, p. 7).

In interpreting the historical reasons associated with ACTEW's infrastructure network, the ICRC has reasoned that the RAB was built for different reasons which are non economic and therefore, contrary to ACTEW's wishes cannot be valued at its full economic cost:

> Given the background of the initial investment in water and wastewater assets in the ACT, and the public ownership of those assets, the Commission does not agree with ACTEW that a revaluation is necessary to ensure long-term sustainability of the water and wastewater business in the Territory (ICRC, 2003b, p. 57).

The final RAB value determined by ICRC in 2003 was a compromise-$900 million, still less than what ACTEW thought was a reasonable compromise namely $935 million. Michael Costello expressed great displeasure (Costello, 2004).

CAPITAL EXPENDITURE

Another component of the tariff setting process is estimating the capital expenditure of ACTEW. While the ICRC had essentially accepted ACTEW's estimates of its capital cost structure, there was one major disagreement:

> While the draft decision accepts ACTEW's forecast capital programme for the next regulatory period, it does not allow a performance fee to be paid to the contractor, ActewAGL, for undertaking the capital programme. The performance fee provides incentive for the contractor to deliver an efficient capital programme ... (ACTEW, 2004e, p. 1).

It seems that ACTEW had an arrangement to pay ActewAGL a performance fee based on ActewAGL carrying out its obligations. The ICRC's view is that such a fee does not consist a legitimate cost item to be borne by customers (ICRC, 2003b, p.23).

The ICRC and ACTEW had numerous quarrels. Other differences have been about ACTEW's contention that the ICRC's reduction of the regulatory period to four years from the original five will prejudice its capacity to make its plans come to fruition (ACTEW, 2004e, p. 2). Another of ACTEW's complaints is that ICRC's requirement for a closer

audit commitment from ACTEW 'verges on making judgements and decisions on ACTEW's business. These decisions must be left to ACTEW...' (ACTEW, 2004e, p. 2). There are many disagreements in the economic regulatory space, yet they do not blow up into major skirmishes between the regulator and ACTEW. How these are managed is the answer to why they have not become major issues. One approach is through public hearings.

PUBLIC HEARINGS

An integral aspect of the price-setting process is holding public hearings. The ICRC is required to make a public announcement of the decisions they make. Section 17 of the *Utilities Act* requires the ICRC to conduct public hearings into its price directions. It states partly:

> (2) For the purpose of conducting an investigation, the Commission may
>
> a) Request submissions from the public or any other specified person or body
>
> b) Conduct hearings.
>
> (3) Unless the Commission otherwise orders, all hearings shall be in public.

Such open participation affords citizens and other interested parties, an opportunity to bring concerns to the regulator. Such gatherings are likened to parliamentary processes:

> Sometimes the ICRC calls for a hearing and it is like a Senate hearing and we sit in front. We are not the only ones who respond. ACTEW responds; the Council of Social Services responds. And then (later) they will have a hearing where they query your previous submission (Interview with Kerrie Brotherton and Bill Pearcy, 3 November 2005, Canberra).

Among the characteristic aspects of this process is the interdependency of some actors over resources. Depending on the nature of the discussion, organisations exchange resources. According to an ACTEW insider, for example, in the past they have assisted regulators by providing information they generated for their own [ACTEW's] internal management

purposes, the 'customer willingness to pay study,'[21] which the ICRC used as part of its information gathering process. Furthermore, they had also seconded their econometricians to plug a capacity gap among the ICRC staff. For ACTEW:

> We feel we have equal sitting at the table when we go to advise our regulators, we have got very good relations with them and I think also, it is always a continuous improvement process. We lend technical expertise where necessary and, *we do a lot of financial analysis* for ICRC [emphasis added] (Interview with Kirilly Dickson, 17 October 2005, Canberra).

The collegial atmosphere in the hearings, however, often masks the underlying seriousness of the processes. ACTEW by definition wants higher valuations on its assets to allow it to pursue higher profits. On the other hand, ICRC's view of its mandate often means ACTEW does not get its way. ACTEW's former employee and now policy consultant, Ken Horsham, explains the innate conflict implied in this relationship:

> ... there is always a lot of tension between ACTEW and ICRC because ACTEW is required to pay dividends back to government and it is only through that pricing determination that it can in fact get the funds to pay that dividend and usually what ICRC are doing is giving ACTEW a return on their capital that they invested (Interview with Ken Horsham, 23 November 2005, Canberra).

It is unsurprising then that, sometimes, these forums turn confrontational. Yet the list of grumblers includes more than ACTEW. While ACTEW may feel that the ICRC is not treating it fairly, some of ACTEW's clients often complain about it. For instance, the Queanbeyan City Council has complained of victimisation by ACTEW whom it claims overcharges the council. In its submission at the 2004 price setting, the Council spent their half hour slot trying to convince the ICRC:

> To recognise the unfair price differential applicable to the Queanbeyan City Council as a bulk water customer compared with the prices paid by the ACT residents (Forgarty, 2004, p. 31).

The public consultation processes play a great legitimating role for the water tariffs set by the ICRC. Such a process affords clients the opportunity to make input into water pricing.

[21] This study was not available for public use.

Despite their honourable intentions, price-setting activities can be exclusionary. The differences in resources between organisations make participation difficult for some. Price-setting forums can become make-believe events because they give the impression that all opinions presented will matter. This is clearly not so.

In the first instance, some of the matters discussed in the forum like wastewater pricing and bulk water charges are outside of the ICRC's mandate and therefore effectively monopoly prices. ACTEW is not at all obliged to take the regulator's advice on them. Deliberating on this matter, however, is important in giving the appearance of consensus building.

Another reason public hearings on pricing are exclusive is because the subject matter can become very technical. To make reasonable contributions, those making submissions need specialised academic training that is not available to all. Some residents see the lack of training in economics as a limiting factor in contributing to the ICRC's price setting mechanisms. Such meetings turn into highly technical exchanges in economics, researched by consultants hired by either ACTEW or the ICRC. Even Peter Sutherland, chairman of the Essential Services Consumer Commission and ACTCOSS, appears frustrated by the process 'I am not an economist and I attended a regulatory seminar yesterday afternoon full of economists and I was shocked. It was so dry' (Sutherland, 2004, p. 56).

DEMAND CONTROL THROUGH PRICING

Another objective of economic regulation in the ACT is control of demand for water. Ideally ACTEW's tariffs ought to act as a signal to consumers to use water sparingly. In setting this particular objective, COAG encouraged governments to follow the principle that:

> Prices should reflect the volume of water supplied so that prices encourage more efficient water use and to give customers more control over the size of their water bill (COAG, cited in (NCC, 2001, p. 26)

ACTEW embarked on this mission as early as 1994, whereas most Australian jurisdictions did so only after the COAG reforms. To date, there is consensus that the Territory's pricing of water is a good indicator of the costs associated with production of the commodity:

> The price people pay for the water in the ACT reflects the cost of the catchment and treatment of the water to consume that water plus the cost of treating the water (Interview with Paul Baxter, 25 November 2005, Canberra).

Table 4 demonstrates the composition of a typical bill from ACTEW.

Table 4: Water and Wastewater Tariff Structure: 2003-2005[22]

Year	2003–04	2004–05	2005–06
Wastewater charge	$354.20	$375.32	$389.00
Water fixed charge	$125.00	$75.00	$75.00
Water volumetric charge	$206.50	$251.50	$285.00
Water Abstraction Charge[22]	$45.00	$60.00	$75.00
Total	$730.70	$761.82	$824.00

Source: (ICRC, 2006b, p. 17).

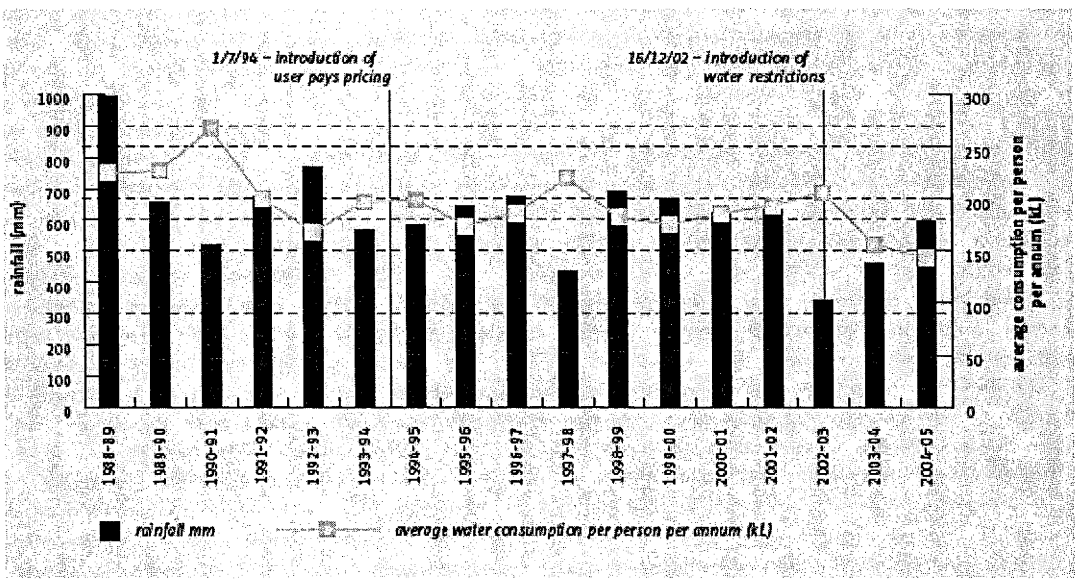
As table 4 demonstrates, ACTEW's customers pay a bill with four components. These are the wastewater charge, fixed water charge, a volumetric charge and the water abstraction charge. The water abstraction charge has been raised each year, increasing the amount paid. The wastewater charge and the water volumetric charge are also rising. The fixed water charge, which is the non-discretionary water volume,[23] on the other hand remains similar throughout, at $ 75.

A question might, however, arise; what has been the impact of the use of the 'user pays' pricing system on the ACT's water consumption and ACTEW's profit objectives? Figure 8 below demonstrates these.

[22] Based on a customer consuming 300 kilo litres per year

[23] The amount needed to perform basic functions- in other words, which is absolutely necessary for hygiene, cooking and related basic human needs.

Figure 8: Water Consumption, Rainfall and Restrictions



Source: (ActewAGL, 2005b, p. 14).

After the introduction of 'user-pays' in 1994, the amount of water-consumed per-person has declined dramatically. However it rose in some of the subsequent years though not consistently, only to decline again after the introduction of the water restrictions scheme in 2002-03. Before 1994, an average person consumed about 250 kilolitres per annum. This could even climb to 275 KL at times as shown in figure 8. The average consumption rate has since changed to just less than 175 kilolitres per annum per person.

MEETING COMMERCIAL OBJECTIVES

COAG encourages water utilities to:

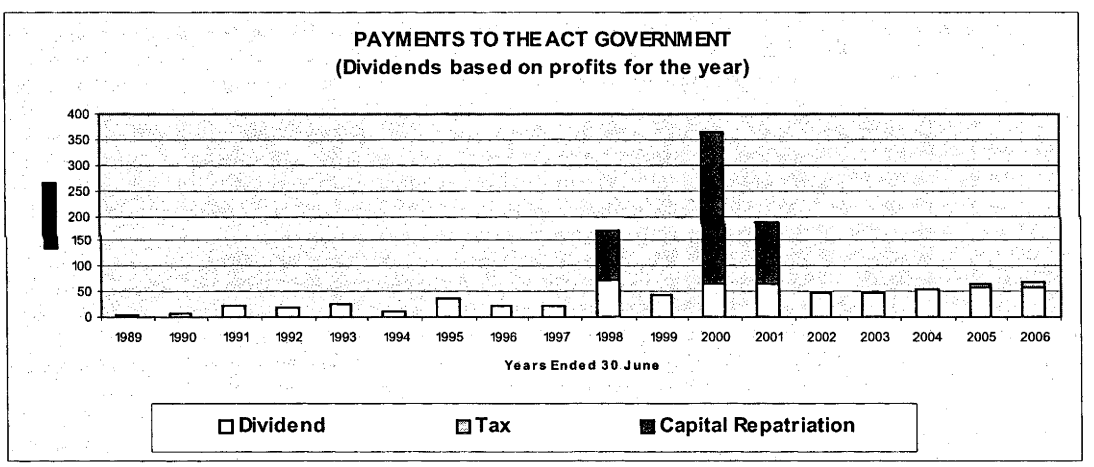
> At least, recover the operational, maintenance and administrative costs, externalities, taxes or tax equivalents (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement. Dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome (COAG, cited in NCC, 2001, p 22).

The ACT Government sets ACTEW's performance indicators. For ACTEW to reach these, it has to carry out its activities within the regulatory constraints set by the ICRC efficiently. ACTEW's manager of regulatory strategy gives the nature of this problem, the essence of which is that government depends on ACTEW to raise revenue:

> Now because we are an ACT Government-owned company, we give all our profits to government. Now if we do not meet our operating costs that is going to drain the budget of the ACT Government. It is going to take those funds away from other services, roads, health, schools and education (Interview with Kirilly Dickson, 17 October 2005, Canberra).

ACTEW's performances concerning meeting its commercial objectives are demonstrated in figure 9 below.

Figure 9: ACTEW's Payments to the ACT Government[24]



Source:(ACTEW, 2005b, p. 11).

ACTEW has performed well, especially since the advent of independent economic regulation in 1997, just three years before partnership with AGL to form ActewAGL. Since 2000, ActewAGL's financial returns to shareholders (dividend) have risen steadily in each year. This enables ACTEW to pay higher dividends to its shareholder, the ACT Treasury. Over and above that, the costs incurred in the past by the Commonwealth and the Territory

[24] These payments also indicate profitability. When the corporation is profitable, it transmits some of those profits as 'dividend' to the Government.

governments in setting up the corporation and its asset base are also covered by ACTEW's business returns. These appear as capital repatriation in the graph.

MANAGEMENT PROBLEMS AND THEIR RESPONSES

The foregoing description of relationships in the economic regulatory space demonstrates the tensions inherent in the process. The ICRC's commitment to independent regulation means that some of ACTEW's targeted profits estimates are not met. ACTEW is an agent of the Chief Minister's Department (CMD) and the Treasury and they both depend on the corporation's profits for their revenue targets. The next section outlines tactics adopted by ACTEW to circumvent restrictions placed on it by the ICRC.

THE WATER ABSTRACTION CHARGE

Implementation of the Water Abstraction Charge (WAC) is one way that the CMD and the Treasury use ACTEW to reach their revenue raising goals. A major challenge for economic regulation is how to raise money for the cost of abstracting the water from the environment. Funds raised in this manner ought to cover the cost of taking care of the catchments including the administrative costs. The WAC, while included in ACTEW's water tariff, is nevertheless passed on to government ostensibly to cover catchment management costs. The officially stated objective of the charge is to:

> Recover direct and indirect costs incurred in the diversion, capture and storage of water and to provide the price signal, which can contribute to the efficient and environmentally sensitive use of water for consumptive purposes. The WAC should to the extent possible reflect the actual costs that are incurred by the ACT Government or costs that are reflected in imposts that are borne as a result of the ACT's abstraction of water for consumptive purposes (excluding those costs already recovered by ACTEW Corporation, the Territory's water services provider, as part of their water and wastewater prices) (ICRC, 2003c, p. 7).

The ICRC formulated the WAC on behalf of the ACT Government, on the basis of relevant terms of reference formulated by the Treasury, which is one of the two voting shareholders of ACTEW. Just as it does with price setting arrangements, the ICRC published an issues

paper introducing the charge and called for submissions from interested parties. The ICRC then held public hearings on the matter before concluding and publicising the report. The WAC final report of 2003 puts the water abstraction charge at 25 cents per kilolitre.

While the WAC is arguably an environmentally virtuous charge, it has its critics. One criticism is that it represents an unfair cross-subsidisation of the ACT's residents by Queanbeyan residents. Such a subsidy occurs because there is no means for Queanbeyan residents, so it is argued, to ensure that the proceeds of the WAC are spent on the objectives for which it was raised. Responding to the ICRC's issues paper on the WAC, Mark Kristofenson of Queanbeyan expressed concerns about:

> The transfer of income between NSW residents in Queanbeyan and the ACT Government that would arise from the proposal to recover social and environmental costs through the Water Abstraction Charge (Kristofenson, 2003, p. 1).

The ICRC dismissed this concern, stating that the benefit of looking after the Cotter and Googong catchments accrues to residents of both cities. Moreover, it was not immediately apparent that Queanbeyan residents paid other charges towards catchment management and related costs. However, the ICRC's dismissal of concerns of the rightful use of the WAC may warrant more attention than the senior commissioner thinks. Peter Jansen, president of the Property and Ratepayers Association of the ACT, believes that Canberra residents pay enough for their water already. He has also questioned the legality of the WAC and its fairness, because the WAC might be an instrument of general revenue raising by the ACT Government:

> Water abstraction charges and any other levies must be used for providing continuity and dependable services. *Ratepayers feel that the use of levies and charges, as a general revenue source, is totally unacceptable* [emphasis added] (Jansen, undated. email communication to the ICRC).

The fear raised by Jansen appears to be held by others in the ACT. The parliamentary Joint House Department raised two concerns: the lack of transparency of the charge and the view that it is excessive:

> The Joint House Department would argue that a fee of $0.25/kL is well in excess of any direct or indirect costs that can be substantiated in the longer term, particularly once bushfire catchment activities subside. It is also not transparent (JHD, 2004 , p. 8).

JHD also voiced the suspicion that the ACT Government diverts the WAC to uses other than the stated purposes:

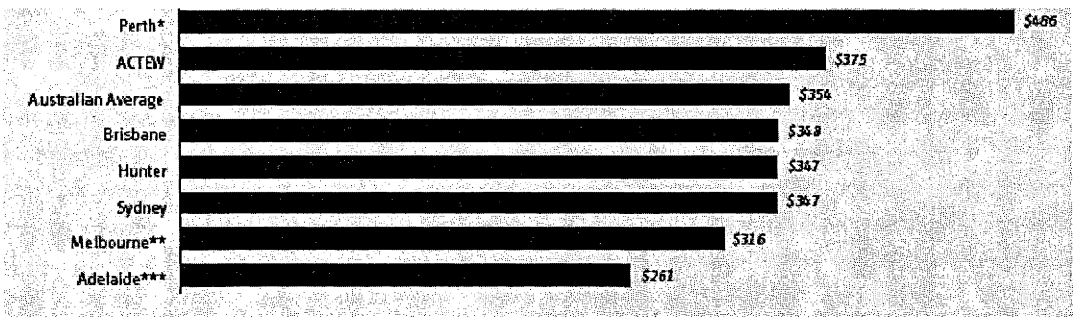
> The Joint House Department therefore objects to those funds being directed to general revenue, suggesting rather that a separate fund be established to deliver this sustainable water use and that funds be directed there. The approximate $15 million per annum in funds generated by the WAC should be accounted for in a transparent manner (JHD, 2004 , p. 8).

The WAC appears unfair in that it is taken directly into the ACT Government's general revenue, and is therefore not spent transparently. Furthermore, the WAC is not separately auditable and therefore the fears expressed by some of these customers appear reasonable; the WAC is likely to be the ACT Government's revenue raising tool for general budgetary purposes under the guise of a charge for catchment management.

WASTEWATER TARIFFS

Another way that ACTEW is able to use its monopoly power is in the pricing of wastewater services. Currently ACTEW's sewerage prices are based on the number of fixtures in one's house. Prices for residential houses stand at a cost of $1.42 per kilolitre. Institutional customers are, however, charged an extra $366.20 dollars per year for any extra water fixture. The problem with this approach to pricing is that it is not related directly to the strength of effluent discharged. Furthermore, charging on the basis of fixtures has the effect of overcharging institutional customers like Parliament House, universities and schools. This is probably the reason that the ACT has the country's second highest sewerage management charges in Australia, as shown by figure 10 below:

Figure 10: Wastewater Charges in Australia

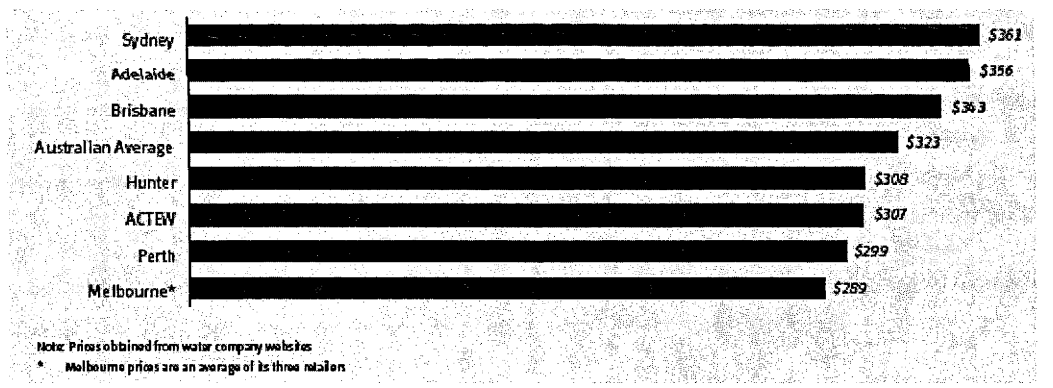


Source:(ActewAGL, 2005b, p. 38).

Note: *Based on rateable land value of $ 8700
**Melbourne prices are an average of it three retailers
***Minimum sewerage charge

Figure 10 above contrasts sharply with figure 11 below. In figure 10 ACTEW's unregulated price is $21 above the national average. On the other hand, when regulated, ACTEW falls $16 below the national average.

Figure 11: Water tariffs: Australian Water Service Organisations- 2005



Source:(ActewAGL, 2005b, p. 38).

The JHD thought that wastewater charges represent an overcharge of customers by ACTEW. JHD further alleged that the wastewater fee charged by ACTEW leads to cross-subsidisation between large, institutional customers like universities and Parliament House, to households. The view that ACTEW is overcharging institutional clients is supported by the ICRC, which, however, has no role in regulating the charge (ICRC, 2004, p xv). JHD also claimed that this overcharge is because ACTEW is the only provider of its services in

Canberra, and customers who feel unfairly treated by ACTEW have no choice but to take the price as given (JHD, 2004 , p. 5).

By JHD's calculation, ACTEW charges Parliament House by an amount equivalent to 847 homes while they contribute the sewage effluent equivalent of only 260 homes. Such a discrepancy in charging has been a subject of several attempts by the JHD to have talks with ACTEW. JHD in its submission to the ICRC has claimed that ACTEW has shown little willingness to address, let alone rectify, the situation. ACTEW's stance on this matter has therefore led the JHD to conclude in its submission on the last price setting that ACTEW is grossly abusing its monopoly, taking advantage of large customers like themselves (JHD, 2004 ,p.10).

On the other hand, neither the Treasury nor CMD have made an official statement indicating that they want ACTEW to change its policy on wastewater charges. While it is up to the two organisations to take the lead in this matter, both are also voting shareholders of ACTEW's.

BULK WATER CHARGES: MANAGING INTER-JURISDICTIONAL REGULATION

Another strategy of negating the ICRC's regulation of their prices by ACTEW is through bulk water charges. These are charges levied by ACTEW to supply water to Queanbeyan. Canberra is the largest city inside the Murray-Darling Basin. It also has a very advanced water infrastructure compared to other cities like Goulburn, Yass and Queanbeyan. There are signs that Canberra might have to supply water to both Yass and Goulburn in the near future as both these towns face water supply constraints.

The ICRC's lack of control over ACTEW's pricing of bulk water charges is because ACTEW is supplying a non-ACT entity, the QCC. Similarly IPARC, the ICRC's New South Wales counterpart, cannot regulate ACTEW because ACTEW is not a New South Wales entity. The politics of water federalism have thus left the bulk water charge unregulated. The New South Wales economic regulator cannot regulate ACTEW's

transaction with Queanbeyan City Council because ACTEW is an ACT water entity. On the other hand, the ICRC cannot regulate ACTEW's prices in Queanbeyan because Queanbeyan is in New South Wales.

The ICRC's role so far has only been to recommend that the price charged to Queanbeyan must reflect the total costs of providing the service. The water ACTEW supplies to QCC is of similar quality to that supplied to Canberra. The Queanbeyan City Council, however, uses its own infrastructure to reticulate water.

The Council, therefore, complains about an inherent lack of fairness in the way ACTEW administers the bulk water charge. ACTEW charges Queanbeyan the same price as it charges Canberra residents though the Council uses its own infrastructure for reticulation. The Council also uses it own employees to operate and maintain the water infrastructure network. The costs to ACTEW associated with supplying Queanbeyan do not include those of delivery of the water to properties or the associated human resource costs. Queanbeyan City Council's economist explained that:

> When QCC adds its administration, operating and capital costs of supplying water to the bulk water charges, Queanbeyan residents pay higher prices than ACT residents do (Forgarty, 2004, p. 12).

QCC has argued fruitlessly to have their bulk water charge reduced. The bulk water charge raises equity concerns due to the monopoly enjoyed by ACTEW in supplying water to Queanbeyan. QCC feel victimised because of their lack of viable recourse, the fact that neither the ICRC nor IPART regulate the bulk water charges. A recent exchange between Greg Fogarty of the QCC and the ICRC senior commissioner went thus:

> Senior Commissioner: ... In terms of your discussions with ACTEW, have they endeavoured to justify, sort of, the prices that they're charging? Is there anything to draw upon?
>
> Mr. Fogarty: It's always on the basis that this is what we want to charge you this year and ...

Senior Commissioner: This is what it's going to be?

Mr. Fogarty: This is what its going to be, yes (ICRC, 2004a, p. 42).

Just as in the case of wastewater charges, the proceeds of bulk water charges are given to the Treasury and CMD as dividends, since the two organisations are voting shareholders of ACTEW.

TECHNICAL AND SAFETY REGULATION

Another component of economic regulation is management of safety and technical matters as these relate to the infrastructure that ACTEW uses to deliver water. Section 64 of the *Utilities Act* lists some of the objectives of this kind of regulation as the protection of the integrity of the network facility, the health and safety of people who use or operate the facility and proper connection of customers to the network. Another objective of safety and technical regulation is to ensure that certain design features are present in the network facility so that it meets certain performance requirements. Such requirements are stated in the various industry codes of practice.

Though falling under economic regulation because it is provided for under the *Utilities Act* 2000, safety and technical regulation relies mainly on the use of standards. Standards are social regulatory mechanisms and they include standards that specify how infrastructure must be designed, input standards that specify the type of materials that go into the infrastructure item, and output standards. Compliance with safety and technical codes of conduct is gained through ActewAGL reporting its safety and technical compliance to the ICRC rather than ACTPLA. According to the compliance officer at ACTPLA:

> ACTEW has to report annually to the ICRC on its performance and compliance. Section 2 of the report deals with technical regulation matters and that is the part of the report that we have devised, and negotiated with the utility and we look at that part of the report, the report is handed directly to the ICRC by the utility but they then send it to us to review (Interview with Anonymous Informant 1, Canberra).

It is after the submission of the report to the ICRC that the ICRC calls in ACTPLA to comment on it. ACTPLA review the report and give their opinion to the ICRC. This in

reality means that despite ACTPLA being listed as the technical and safety regulator, they conduct such a role indirectly.

EXPERIENCES WITH PERFORMANCE OF NETWORK OPERATIONS

Network operations have an impact on the quality of service customers receive from ACTEW. A poorly serviced network could lead to sewage pipe bursts, endangering public health. While there are many indicators of network management, the ICRC and ACTPLA follow indicators stipulated by the Water Services Association of Australia (for some of these, see table 5 below). Part 7, Division 7.3 of the *Utilities Act* 2000 sets out the obligations of utilities in relation to performance of network operations and provision of notices to landowners regarding any such work. Specifically, Division 7.3 requires a utility:

- In carrying out network operations, to take all reasonable steps to ensure that it causes as little inconvenience, detriment and damage as is practicable (section 108)
- To provide minimum notice to landholders before performing network operations (section 109) or tree lopping (section 110) on their land
- To provide minimum notice to other public utilities whose operation may be affected by the network operations (section 111)
- To remove machinery, property and waste from the land on which the network operations were undertaken (section 112)
- As soon as is practicable, to restore the land to a condition that is similar to its condition before the network operations began (section 113).

Table 5 below gives an example of outcomes of customer service regulation from 2001. The table demonstrates the performance of network services for water and wastewater since the ICRC began measuring performance in the concerned service in 2001-02.

Table 5: Performance of Network Operations: Complaints about water

	2001-02	2002-03	2003-04
Inconvenience, detriment or Damage to landholders property (section108)	32	30	25
Provision of notice to landholders about network operations (s109 and 110)	3	23	6
Removal of machinery, property and waste from land (s112) following network operations	142	46	33

Source: (ICRC, 2004c, ICRC, 2004e, ICRC, 2006a).

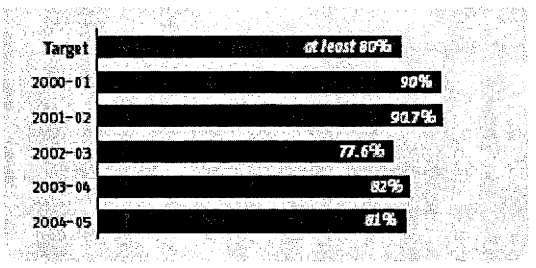
Table 5 gives evidence of continual improvement by ACTEW of its water network since recording of these indicators. Whereas in 2001-02 there were 177 complaints about customer service, this figure was reduced significantly to 99 in the following financial year. For that reason, improvements in customer service complaints represented an overall decline of almost half (48.4 per cent). Such reports fell further in 2003-04 to 64, representing a further 20 per cent reduction in customer service complaints for the indicators above.

ACTEW has attributed the reduction in complaints related to site restoration to the decline in meter replacement thus negating the complaints about restoring the sites after construction. Another contributing factor to the decline in complaints is attributed to overall improvement in ACTEW's management of its subcontractors' performance (ICRC, 2004f).

CALL CENTRE PERFORMANCE

The Consumer Protection Code also requires that ACTEW must answer at least 80 per cent of calls within 20 seconds of the call being made. Below is a depiction of ACTEW's performance in the last five years.

Figure 12 Customer contact centre: percentage calls answered within 20 seconds



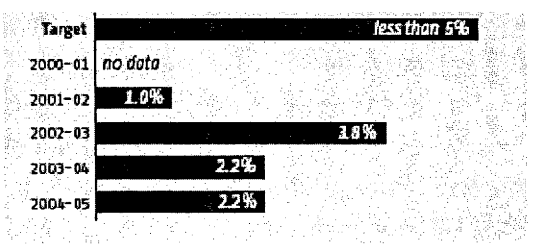
Source: (ActewAGL, 2005b, p.23).

Figure 12 above shows that in the last five years, ACTEW has managed to perform well in four of them. In 2002-03, however, the year that bushfires ravaged Canberra, performance was understandably poor.

ABANDONED CALLS

The Consumer Protection Code also sets standards for how utilities ought to handle customer telephonic complaints. Figure 13 below shows results from 2001.

Figure 13 Customer contact centre: percentage of calls abandoned



Source: (ActewAGL, 2005b, p.23)

ACTEW appears to be performing above minimum standards. Whereas the Consumer Protection Code declares that no more than five per cent of calls may be abandoned, [25] ACTEW's call centre did not come to within a percentage of such standards between 2001

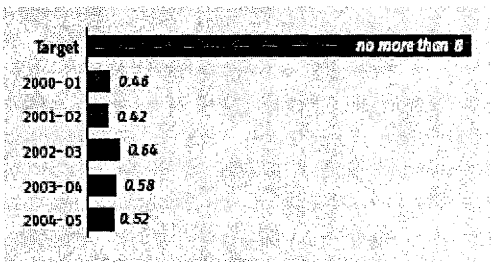
[25] An abandoned call is one where the caller hangs up before the operator answers.

and 2005. Besides 2003 when the bushfires would have caused many water quality complaints related to chlorine especially, ACTEW has always managed to stay below 3 per cent, well within the prescribed standard.

NETWORK INTERRUPTIONS

Unplanned network interruptions present the problem of depriving customers a service for the duration they last. They are an indicator of service effectiveness.

Figure 14:Unplanned interruptions per 1000 customers



Source: (ActewAGL, 2005b, p.24)

On network interruptions, ACTEW has performed well through the years. While it appears that the incidence rose during the years 2002-03 and 2003-04, it declined in 2004-05. Part of the reason for the rise in unplanned water interruptions is that many properties had been built along a major city road, the Northbourne Avenue, overburdening the existing pipeline. ACTEW is now in the process of replacing that pipeline with a larger one to accommodate the extra demand (Interview with Kirilly Dickson, 6 February 2006, Canberra).

MANAGEMENT CHALLENGES AND THEIR RESPONSES

Regulation of technical and safety standards manages ACTEW's infrastructure network. When failures occur, customers report to the utility, which then has to attend to the problem. Network serviceability is important in delivering quality services to customers. Higher quality services, however, require higher investments; therefore, implementing this particular activity has its own challenges. In the following section, we outline the strategies that ACTEW, aided by regulatory codes of practice, is able to avoid using high standards of service for its infrastructure network. Such a stance enables ACTEW to avoid higher costs of network maintenance.

STANDARD SETTING

One problem with enforcing network serviceability is the loosely defined standards. ACTPLA complains that it is difficult to measure ACTEW's compliance because the language of the relevant codes of practice is loose and does not define clearly what compliance is. The technical regulator cites some of the offending sections of the Act:

- In carrying out network operations, to take all reasonable steps to ensure that it causes *as little inconvenience, detriment and damage as is practicable* (section 108) [emphasis added]
- As *soon as is practicable*, to restore the land to a condition that is similar to its condition before the network operations began (section 113) [Emphasis added].

The above provisions accord ACTEW considerable discretion about how or when to comply, leaving ACTPLA with little scope for criticism. According to ACTPLA, lack of clear standard definition makes their duty difficult:

> It is impossible to say that the utility is not complying because there are virtually no standards and the ones that are there are not explicitly stated. What I think is not compliance they will say, 'I am doing a bloody good job' (Interview with Anonymous Informant 1, Canberra).

The loose definition of compliance means the regulator has difficulty enforcing discipline on ACTEW. The matter is further complicated because technical and safety codes of practice in the ACT specifically mention that ACTEW is to frame its own standards of practice for technical and safety regulation. Such an approach contradicts the principle of separating regulation from ownership and management of resources. According to the technical regulator:

> Under the Act it is the utility's duty to design standards, and in fact at the time the Act was written the utility already had the standards and these were the standards the utility put forward as the standards that it had to develop (Interview with Anonymous Informant 1).

ACTPLA's claim is validated by the Water and Sewerage Network (Design and Maintenance) Code. Section 5.1: of the Code partly reads as follows:

> A Water Utility must develop, maintain and implement design standards for the Water Network that are consistent with the standards in Schedule 1 to this code (ACT Government, 2000c)

Similarly Section 3.1 of the Water and Sewerage Service Installation Code 2000 reads thus:

> Each Water Utility and Sewerage Utility must, within six months following the grant of its Utility Services License
>
> 1. Prepare its own interim Service and Installation Rules; or
> 2. Adopt interim Service and Installation Rules developed by another Person

Noticeably absent in this instance is a clearly stated direction that the utility will have to implement standards promulgated by a regulator. In this case, there is obviously no clear separation between the owner of the network (ACTEW), the manager of the network (ACTEW) and the standard setter (ACTEW).

While the regulator is clearly displeased, there is a historical explanation for this state of affairs. When ACTEW was formed in 1988, it was the appropriate body to formulate these standards, as it was a self-regulatory body. There was nothing strange about this:

> When we set up in 1988, the notion was we were not only providing those monopoly services, we were also providing the regulatory services for water and energy, and for electrical contracting. So I was the proper authority for all those, and running the utility (Interview with Paul Perkins, 15 November 2005, Canberra).

While acknowledging the origins of this problem, the technical regulator has a point of principle to make:

> One of the issues with the way this whole thing is set up is that many of the important regulatory documents, like the design standards, are actually specified in the Act *not* to be designed by the regulator ... and personally I think that is not

> something that ought to be left to the utility (Interview with Anonymous Informant 1).

Regulatory practice has since changed and now it is considered appropriate and even desirable in the interests of avoiding regulatory unreasonableness for regulated entities to take part in the design of standards of regulation (Ayres and Braithwaite, 1995, p. 36). In the ACT, what has happened about drafting the safety and technical codes is that ACTEW did not simply participate in the drafting of the Codes. It designed them. This process led in various respects to rudimentary rather than rigorous codes, as shown above.

Since 2004, the Government has been talking about redesigning the *Utilities Act*. This has not as yet happened. ACTPLA has expressed the hope that this will finally give them a chance to formulate new standards, which are clearer and more robust.

CUSTOMER SERVICE OVERSIGHT

The Essential Services Consumer Council is a creation of the *Utilities Act*, 2000. Part 11 of the Act establishes the ESCC. Under section 170, the ESCC's role is to mediate problems that remain unresolved between utilities and customers. The ESCC's case manager likens the role of the ESCC with that of the Ombudsman:

> In place of the ESCC, the states use the Ombudsman. The Ombudsman deals with complaints of public bodies. However, the ESCC deals with complaints that pertain to the *Utilities Act*. The *Utilities Act* set up the ESCC to handle complaints with regard to the implementation of the Act (Interview with Kerrie Brotherton and Bill Pearcy 3 November 2005).

CONSUMER PROTECTION AND ADVICE: MANAGING HARDSHIP COMPLAINTS

One of the functions of the ESCC is to assist customers with hardships. Customer hardship refers to inability to pay water bills. A customer in hardship is given a hearing by ESCC, which then resolves the customer's problem by making representations to the utility to rearrange debt, which the customer may pay in instalments. In other cases, if the customer

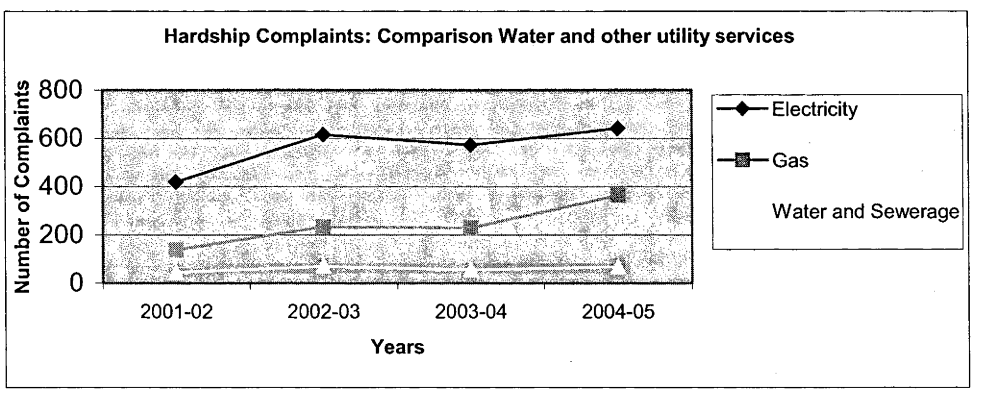
is completely incapable of paying, then Government may pay that as a community service obligation. Hardship cases do not represent complaints against ACTEW. Instead, they are about inability to pay for such reasons as job loss, divorce or high medical expenses (ESCC, 2002, p. 6).

Hardship cases are presented to the ESCC for mediation. The ESCC has powers to cancel debts of up to $10 000 on hardship grounds. When the ESCC writes off the customer's debt, the Government pays ACTEW, as a form of community service obligation (CSO). Figure 15 below shows the volume of hardship complaints of water in comparison to other utilities. Water has fewer hardship complaints than either gas or electricity. Part of the reason could be that water is a rateable commodity in the Australian Capital Territory, meaning that:

> Water debt is associated with the land title, we don't see a lot of water indebtedness hardship, because the utility knows that by law when the property is sold, account must be brought up to date, out of the proceeds of the sale of the property. When the property is sold, it must be unencumbered by debt. In other words, it must have no debt associated with it. For example, if I have $10 000 worth of unpaid water bills, and you buy my house, the utility knows that they will get $ 10 000 out of the sale of the property and you (the buyer) will start from zero (Interview with Kerrie Brotherton and Bill Pearcy 3 November 2005, Canberra).

Another possible explanation for the lower incidence of hardship cases is that water is historically cheap in the ACT.

Figure 15: Hardship Complaints, Water Compared to other Services



Source: ESCC (2002; 2003; 2004; 2005).

Since they can always recoup their money in the end when property is sold, there is a perception that ACTEW is not as robust in chasing up debts for water as they are for electricity or gas. Such lenience has the opposite effect of making service quality satisfaction for water appear unrealistically high since there is less motivation for ACTEW to be aggressive in collecting debt. The regulator thus observes:

> With indebtedness, the utility is not as robust about collecting their debt as they are with electricity or gas, because they know one day they will get paid. And in the meantime interest is being accrued on the debt. So, they sort of go 'whatever' (Interview with Kerrie Brotherton and Bill Pearcy 3 November 2005, Canberra).

The way that the ACT utility regulation is set up therefore makes for an environment where confrontation is infrequent. In so far as ACTEW is protected by the ACT Government from making any loss when people fail to pay, critics point out that it could encourage laxity by ACTEW to collect debts.

Administration of hardship cases also assists in deflating potential conflict between ACTEW and customers where ACTEW is in the wrong. In the administration of hardship cases, the ESCC, however, takes into consideration that in certain instances, ACTEW's administrative shortcomings could lead to failure by customers to pay. Such administrative lapses include not sending bills to the correct address. Such awareness is important in assisting customers not to be victimised as a consequence of ACTEW's own faults:

> The Council [ESCC] will not exercise the discretion where the customer's debt has occurred because of failures by the utility, as this would provide a reward to the utility for such failures (ESCC, 2002, p. 9).

When such circumstances do arise, the ESCC normally asks ACTEW to bear the cost of the customer's debt, either by discharging such debt or counting it off future bills. One example occurred in financial year 2003-04:

> The Council [ESCC] also recommended that ActewAGL pay compensation in relation to one water bill complaint where Council felt that compensation was

justified but the Act did not give the Council jurisdiction to make a binding order for compensation. Initially, ActewAGL did not accept this recommendation, however this decision was reversed after discussions between the Council and the CEO of ActewAGL (ESCC, 2004).

MANAGING NON-HARDSHIP COMPLAINTS

A non-hardship complaint is directly related to a customer's dissatisfaction with ACTEW's service. Utilities are required to have their own internal complaints handling procedures and ACTEW does have its own arrangements for customer complaints. Cases that reach the ESCC are those that are not resolved between ACTEW and its clients. Non-hardship complaints include four general groups of dissatisfaction about service: failure by ACTEW to observe some of the stipulations of the Act; billing discrepancies; disconnecting error; and failure to make proper notice before taking action. The incidence of non-hardship complaints is represented in table 6 below:

Table 6: Non-Hardship: Electricity, Gas, Water 2001-2004

	Non-Hardship Complaints			
	2001-02	**2002-03**	**2003-04**	**2004-05**
Electricity	25	20	16	14
Gas	14	11	10	18
Water and Sewerage	9	9	9	8
Total Complaints	48	40	35	40

Source: (2002;2003;2004;2005).

Non-hardship complaints about water and sewerage are fewer than for gas and electricity. It can be surmised that most clients of ACTEW's do resolve their issues with ActewAGL customer service representation. Other cases that reach the ESCC are about clients wanting to be heard by a neutral party. According to the ESCC, the resolution of about sixty-per cent of these:

> May be as fast as a single phone call, or may involve inquiries to third parties such as banks or ACT Housing. Solutions often present themselves in the course of

> distilling the facts through communication with both parties. Many clients just want to be heard (ESCC 2003, p. 15).

THE PLIGHT OF UNINFORMED CONSUMERS

The Consumer Protection Code requires ACTEW to pay customers a certain amount of money if it has failed to ensure continued supply or where pipes had broken. Such refunds could be useful in enforcing discipline on ACTEW if automatically given by ACTEW to consumers in the case of non-compliance. However, the Code is written so that it has the effect of allowing ACTEW not to pay some of these fines. Consequently, ACTEW's compliance with the provisions of the Consumer Protection Code is a not a straightforward matter. The way that the Code is written is unlike that of other jurisdictions either in Australia or elsewhere because ACTEW is not obliged to pay the penalty fee automatically when service falls below agreed levels.

Complying with the Consumer Code of Practice is therefore problematic. Consumers may not be well versed with their rights under the Code, while enduring difficulties stemming from ACTEW's shortcomings in fulfilling its duties. The ICRC raised this matter in its annual report for compliance in 2001 where it became apparent that ACTEW had not, as required by the Code, given any notifications to consumers for failure to comply.

> The Commission [ICRC] is concerned that the absence of any rebates paid may be a result of lack of knowledge on the part of customers of their rights, rather than the behaviour of the licensee per se. The Commission notes that licensees in other jurisdictions automatically pay rebates, while in the ACT rebates are paid only if requested by entitled customers (ICRC, 2004f, p. 105).

However the ICRC is suspicious that ACTEW does not intend to alert its customers to their rights as it points out:

> The Commission is concerned that the licensee is reluctant to actively promote the availability of the rebates to customers as this may lead to frivolous claims. The low payment of rebates is an issue the Commission intends to pursue (ICRC, 2004f, p. 107).

The capacity of these rebates to manage ACTEW's behaviour is compromised in cases where customers are not aware of their rights, as noted by the ESCC. This problem represents a continuing debate:

> There has been this argument that if the customer doesn't know they are entitled, then how do they ask. The utility on the other hand retorts: 'how do we know how we are going to find out if the water has been cut out longer than it says in the standards?' How do we know how long it has been cut off, maybe the customer has not been inconvenienced? Maybe they were on holiday'? *The person has to claim* [emphasis added]
> (Interview with Kerrie Brotherton and Bill Pearcy 3 November 2005).

As a dominant player in the water policy of the ACT, ACTEW has the advantage of being insulated from penalties by this provision. While the provision exists for ACTEW to pay such penalties, it insists strictly on customers making a claim, which runs contrary to common practice.

REFRESHING THE REGULATIONS: SYSTEMIC ISSUES

Another way in which regulation in the ACT allows for policy to be tightly implemented within a network of actors is through the subject of systemic issues. Through this mandate, the ESCC identifies weaknesses in the Consumer Protection Code through complaining customers and then assists the ICRC and ACTEW in updating the Code. The regulation of systematic issues is provided for under the mandate of:

> Addressing systemic issues and problems in the relationship between utilities and their customers/consumers, and proposing remedial course of action to government, the ICRC, or the utilities (functions (a), (d), and (e)(ESCC, 2004,chapter1).

A systemic issue is a matter that hampers smooth administration of the Code or the Act. It is:

> Something that will relate to all of the consumers, not to just one specific circumstance on its own, although one particular issue will raise the concern. It then becomes apparent to the Council that this in fact will relate to all of the citizens and it has a wider impact so that they will then maybe pursue that issue without

> having a specific instance to deal with (Interview with Kerrie Brotherton and Bill Pearcy, 3 November 2007, Canberra).

Once a problematic issue is identified, notification is then sent to the ICRC, the Treasury, ACTEW and ActewAGL:

> They will take that and then generalise it to the population and say, 'okay this is something that the Government, the regulators or the utilities will have to address because there is something inequitable in its treatment of all the citizens and then apply this rule to everyone.' We give this to the ICRC so that they maybe can change the regulation (Interview Kerrie Brotherton and Bill Pearcy, 3 November 2005, Canberra).

Several examples exist of intervention by the Council on behalf of consumers. An ESCC member narrates one such instance. A landowner had been required by ACTEW to bear the costs of moving water pipes in his own yard when he wanted to redevelop his plot:

> There was a guy who had water pipes running underneath his garage. This chap wanted to build on his property and the water ran in such as a way that he was asked to redirect his pipes around his property basically. He said, 'why do I have to do that because the water pipes had already been there on the property?' The problem was that this was legal back then when the ACT became a self-governing body but not now (Interview with Kerrie Brotherton and Bill Pearcy, ESCC, 3 November 2005, Canberra).

The ESCC reported the matter to ACTEW and the ICRC. Both made representations to the Chief Minister's Department and the Treasury who were said to be looking into how to come to an agreed solution with both ACTEW and the property owner. Being a point of contact for unhappy customers, the ESCC may uncover information that neither the ICRC nor ACTEW's customer services representation are aware of.

Systemic issues therefore represent another example of how policy actors in a network assist each other continually to solve bottlenecks in policy without referring to outsiders. While it is customers who raise problems with the ESCC, it is the ESCC, which reports to the ICRC and ACTEW, both of whom then assess how improvements can be made to the Code.

There are some constraints in the ESCC's handling of non-hardship cases. The ESCC has the latitude to impose fines that range from $60 for small infractions up to $10,000 on ACTEW if they deem this to be sufficient. A potential problem arises out of this provision. Damages due to ACTEW's negligence could amount to more than the stipulated amount of $10 000 dollars. The $10 000 fine is arbitrary and it limits the ability of the ESCC to intervene on behalf of citizens. Where customers feel that $10 000 is insufficient compensation, their realistic avenue is to resort to legal process, which would not only be expensive, but possibly drawn out as well.

Placing limits on the amounts the ESCC can impose on ACTEW sharply contrasts with the protections that ACTEW has under law in instances when it is owed money by its customers. When a customer fails to pay the amount of money that ACTEW may collect has to be paid by the debtor with interest. Some regulators thus expressed fears that this could actually give ACTEW the incentive not to seek debt actively because of the way the law is crafted. Not only does ACTEW get their money back; they get such monies without having to go through the expensive wrangles entailed in the legal process. They only have to wait for such a property to be sold, since ACT law dictates that properties are not to be encumbered by debt when sold. Monies owed to ACTEW are automatically paid as a prerequisite to ensure this provision is observed.

Over and above its support for ACTEW, this provision unnecessarily puts the burden to collect ACTEW's debt on landlords. Unlike gas, telecommunications and electricity, water and wastewater services are billed to the landlord. Tenants are not billed and therefore do not have to pay, lessening their sense of responsibility. A long-term tenant who does not pay a bill would only put their landlord at risk of long-term debt if ACTEW does not pursue that debt.

A further problem with the ESCC's mandate is it cannot take pre-emptive action to protect customers from monopoly abuse. The *Utilities Act* 2000 stops the ESCC from investigating

potentially contentious matters unless they are reported to the ESCC. According to Peter Sutherland, the ESCC's chairman:

> It is Council's experience that the requirement for a specific 'contravention' to exist before the powers in Division 12.3 can be exercised, is unduly constricting on the Council's ability to achieve an appropriate outcome in some of the complaints, which it adjudicates (Sutherland 2004, p.3).

According to Sutherland:

> An example of this is a complaint where the customer's concerns are fully justified, however, the basis for their concern is poor communication by the utility rather than a specific contravention of a Code or contract (Sutherland 2004, p.3).

Compared to other utilities water and wastewater services has lower numbers of hardship cases per year for all the four years under review and lower numbers of non-hardship cases. This could indicate the effectiveness of the water regulatory system. Yet the knowledge that ACTEW Corporation would not normally be in a hurry to collect its money from defaulters, knowing that such money accrues interest, means that the possibility is there that there is actually a lack of incentive for ACTEW to pursue debt vigorously since they will get paid in the end, no matter how long it takes. They will also get interest accrued paid to them.

COMMUNITY SERVICE OBLIGATIONS AND EQUITY

A challenge to economic regulation is ensuring that services reach those that cannot afford to pay for services. The ICRC's senior commissioner outlined the problem with designing pricing structures:

> Designing that sort of thing is difficult because every household is different. Your household might consist of just you, and my household might consist of my wife and myself, while one of my daughters consists of five of them, she now has three kids, and so every household is treated the same in terms of pricing, you can't differentiate in terms of pricing (Interview with Paul Baxter, 25 November, 2005, Canberra).

The Consumer Protection Code defines a consumer and a customer differently. A consumer is a person who uses the utility's services. Consumers are not necessarily customers, who in the definition of the Code are persons contracted with the utility, usually the landholder. When a private person is a consumer, and they are in hardship circumstances, and request assistance, such money is credited to the customer, who by virtue of owning the house is contracted to ACTEW. This is despite the obvious point that the customer is not the one in hardship. The names on ACTEW's databases are those of the landholders who may not necessarily be the people deserving of CSO. In a submission to the ICRC, the chairman of the ESCC articulated the nature of this particular challenge thus:

> If for example a tenant were to come to us as a consumer and say, 'I can't afford to pay my water bill' ... If we are to provide a CSO, there is every chance the lesser would certainly pocket it an initial profit. There is no obligation on the lessor to pass it on. Morally there might be, but there is no way we can actually enforce that (Sutherland, 2004, p. 47).

While the need to target individuals is difficult, the same could not be said about institutions, raising the question, why assist schools and churches almost indiscriminately? Targeting becomes problematic and does not enhance directing CSOs to appropriate people. CSOs for schools and churches are paid without due regard to capacity of the entity to pay. All schools and churches in the ACT that apply for it are lumped in a group of beneficiaries of CSOs. Such a provision entitles them to having half their water bills paid for by the ACT Government. The exact problem in this instance is that, as applied, a CSO 'has no relationship to need ... your rich private school with very extensive lawns is getting a larger CSO than a poor parish school' (Pearcy, 2004, p. 63)[26].

Pearcy suggests that a solution to this issue is to address CSOs through the education budget or, alternatively, enhanced targeting to needy individuals by:

> Picking up and targeting that concession to individual families in the school who are having a hardship rather than applying it to the CSO to benefit the school itself or the church (Pearcy, 2004, p. 63).

[26] Pearcy is a member both ESCC and ACTOSS.

The application of CSOs is interpretable from two perspectives. They can be viewed as a way of government helping needy members of the community. They can also be seen as a way to build popularity in the community.

CONCLUSION

Economic regulation in the ACT has three major activities: setting tariffs for water and wastewater services; managing safety and technical matters; and managing customer services matters.

In the setting of water and wastewater tariffs, ACTEW and the ICRC rarely come to agreement on what is the appropriate level of pricing to compensate ACTEW for its investment, operation and management of the ACT water services and network. While such disagreements are initially 'sorted out', the figures settled on are highly skewed towards the ICRC's perceptions and calculations of what are appropriate tariffs to reward ACTEW; levels that ACTEW feels are too low. Yet ACTEW still remains profitable. In order to negate the ICRC's stringency, there are activities that remain unregulated by the ICRC. Water abstraction charge, wastewater services and bulk water transfers are unregulated. Arguably it is through the latter two that ACTEW attains profitability while the Treasury claims the proceeds of the water abstraction charge.

Concerning the management of technical and safety matters in the water and wastewater infrastructure network, ACTEW seems to have continually improved performance of relevant tasks since the ICRC began managing this activity, in 2002. The regulator's capacity to manage this activity, however, seems to be compromised by the fact that ACTEW wrote down the standards of management when it was a self-regulating water department. The standards seem to lack rigour in the way they are written, compromising the regulator's capacity to criticise ACTEW's performance.

The regulation of service quality matters on the other hand demonstrates how peace is kept in the water regulatory space. In the management of non-hardship complaints, activity,

ACTEW continues to perform better each year. In the management of hardship complaints, water has comparatively lower incidences than electricity and gas. Part of the explanation for this is that the ACT Government has made water a rateable commodity. The management of systemic complaints, on the other hand, enables ACTEW, the ICRC and the ACT Government to discover potentially contentious laws in the management of water and wastewater services and act on them before they spiral out of control.

Network approaches to managing policy change in the ACT

In this chapter on economic regulation, it has been shown that the ACT's water policy community has been able to enable a smooth transition of policy from a self-regulating ACTEW to one whose prices are regulated. ACTEW was initially ambivalent about regulation and still shows signs of dislike to it. However the corporation is able to recover its costs and therefore aid the cause of its shareholders the Treasury and CMD by attaining profitability regularly. Part of the reason for this is that the corporation is aided by the two shareholders turning a blind eye to the need to reform some of the Acts and codes of practice managing economic regulation. As an example, the corporation (arguably) overcharges institutional clients in Canberra. The Queanbeyan City Council also feels aggrieved at the prices they are charged for bulk water transfers. Both QCC and institutional clients such as Parliament House allege that ACTEW has ignored their pleas to reconsider pricing in the past.

Furthermore since the ACT government is prepared to forego income to cover ACTEW's loss in the event some customers fail to pay, the corporation has no need to vigorously pursue debts, possibly in antagonism to residents. By not automatically refunding clients in the event ACTEW fails to keep its obligations, the corporation is protected by law from losing any revenue. Similarly government by defining water as a rateable commodity means ACTEW can always wait for properties to be sold and get any debts with interest, and possibly charge the landlord for the debt even if the landlord did not directly incur the debt. All these provisions exist because the *Utility Act 2000* and supporting codes of practice such as the Customer Protection Code allow them.

In the next chapter, this thesis analyses the management of a different regulatory space; social regulation, which is dominated by actors who had a long historical association with ACTEW.

7 SOCIAL REGULATION: MANAGING REGULATORY SPACE BY TRUST AND SELF-REGULATION

Social regulation in ACT water policy includes drinking water quality; environmental flow guidelines; water restrictions; and the water efficiency program. The ACT social regulatory space allows actors in the regulatory space multiple chances to both share their resources through ongoing interdependencies. Regulation also allows the dominant set of actors in the network to constantly exercise the discretion to define and redefine problems and the resources required to address these problems. These actions allow ACTEW to engage in regulation willingly, on the one hand, while allowing the 'regulators' to appear as though they are, indeed, regulating ACTEW.

Trust is the major currency used to carry out social regulation. Such 'trust' is built on several prerequisites, including the knowledge by regulators of ACTEW's capacities, 'coordinating' bodies and putting emphasis on the presence of certain infrastructure structures that enable ACTEW to perform its duties better. Requirements for constant reporting ensure continued interactions between the regulators and ACTEW. Such reporting ensures that 'compliance' is continuous, lessening the likelihood of later friction.

Next to be analysed in this chapter is the recent historical development of the ACT social regulatory network to reveal reasons for the existence of the 'trust' atmosphere. Thereafter the chapter analyses the management of drinking water quality in the ACT. This analysis includes the organisations and legislative instruments, results of monitoring of ACTEW's performance of this activity, and the various approaches used to solve common management problems. Thereafter the chapter assesses administration of the ACT's environmental flows regime. This analysis will include the actors in the regulatory space, their interests, legislative instruments that guide implementation of the activity and approaches to solving common management problems.

The third major regulatory activity to be assessed in this chapter is the ACT's water restrictions scheme. Under this scheme the ACT Government directs residents to use less

water when the Territory's dam levels fall below half capacity. The scheme guides users as to when they may use water and in what quantities. Administration of this scheme reveals the deeply interdependent nature of managing regulation in the ACT. While there is evidence of law breaking by some residents, there is no evidence of government applying the law to its fullest extent; instead, regulators resort to educating non-compliers about the need to conserve water.

The last activity to be analysed is the management of water-efficient devices. Through this scheme, the ACT Government subsidises residents to buy devices that can help to save water. Management of the scheme involves ActewAGL as manager, which is contrary to the ideal of separating the water manager from the regulator. Closer examination of the program however reveals that the ACT Government engages ActewAGL to run the program due to the corporation's proven organisational capacities that enable it to capably run the program.

THE ANATOMY OF TRUST

Social regulators manage the impact of water resources on humans and the ecology. By interpretation, appropriate outcomes in this regulatory space are where substantive regulatory goals are attained by ACTEW. Regulators are not necessarily sticklers for rules. They tend to design compliance standards and leave ACTEW to find out how best to attain them. The use of sanctions in this regulatory space is limited. Persuasion, self-regulation, coordination and constant revision of expectations ensures that agreement is fostered.

Social regulators favour self-regulation. Only ACTEW and government departments mainly occupy the regulatory space. Outsiders, while admitted from time to time, enter only on a limited basis. For instance, community groups such as Water-watch conduct their own water quality monitoring activities (Environment ACT, 2004, p.39).[27]

[27] Water-watch is a community program that empowers communities to monitor their own local waterways and catchments. It involves such local groups as Landcare, Parkcare and Catchment Groups. They are credited with such positive influences as removing litter from waterways, weed eradication, reduction of pesticides and other pollutants.

However, in contrast to counterparts in the economic regulatory space, their participation, while important, tends to stimulate ACTEW to perform its functions better while assisting regulators to uncover potentially helpful information.

EXECUTIVE DEPARTMENTS AND SOCIAL REGULATION

The main social regulators are the executive departments of the ACT Government. These departments include ACT Health, Environment ACT, and the Chief Minister's Department (CMD). Water regulation is only part of the mandates of executive departments. ACT Health, for example, is in charge not only of drinking water quality. It manages other public health concerns such as hospitals and mental health.

ORIGIN OF REGULATORY POWER AND LIMITS ON DISCRETION

The building of trust in social regulation is partially explainable by the relative consensus that surrounds the reasonableness of the regulation. For example, the Drinking Water Quality Code of Practice makes many references to the Australian Water Drinking Water Guidelines (ADWG). The ADWG in turn reference the World Health Organisation (WHO) standards, which possibly makes them easy for ACTEW to accept, because they tend to allow for self-regulation. In sharp contrast, the economic regulator's codes of practices originate in the ACT, were drawn up in most instances by the ICRC, and are mostly new and give considerable discretion to the regulator.

HISTORY OF WORKING TOGETHER

History is another explanation for the comparative lack of tension in social regulation. Some staff in social regulatory bodies are former employees of ACTEW. Not only do they have a history of collegiality with some of ACTEW's current employees, they also have a history of working as part of a self-regulatory ACTEW. Most of ACTEW's employees are former public servants. Relocating them to ActewAGL had the impact of removing from the public sector a critical mass of inspectoral staff. As observed by ACTPLA, the technical regulator:

> It appears that water and sewerage utility technical staff overseeing planning and maintenance have decreased and their numbers are now divided between ACTEW Corporation and, for the major part, ActewAGL (ACTPLA, 2004, p. 1).

The preference for self-regulation by social regulators could be a result of pragmatism; the regulators are understaffed and generally under-resourced compared to ACTEW. Due to this reason, they allow ACTEW the space to use its vast organisational resources including finance, human and infrastructure resources to implement policy.

STICKS AND CARROTS IN EQUAL MEASURE

A further contrast between social and economic regulation is the availability of incentives and penalties. ACTEW is fined $60 by economic regulators when it does not meet the requirement to restore service to a resident on time. With social regulation, however, the tendency is to find out what went wrong, and rectify it. Sometimes regulators provide ACTEW with considerable assistance to comply. For instance, ACTEW's communications manager pointed out that with water restrictions, some people might not comply with the requirement to use hosepipes because they suffer from arthritis. To assist them to comply ACTEW was taking steps to identify hosepipes whose squeezing action brings lesser pain for arthritis sufferers.

REGULATION OF DRINKING WATER QUALITY

Drinking water regulation demonstrates several fundamental aspects of 'regulation' in the social regulatory space. One of these is that between the regulator, ACT Health, also known as the DHCC, and ACTEW, 'compliance' is interpreted beyond merely meeting the stipulated standards in the Drinking Water Quality Code of Practice (DWQCP). The essence of compliance in this space is attainment of substantive regulatory outcomes. Due to ACTEW's endowment with resources necessary to achieve policy aims, the regulator allows ACTEW considerable discretion to implement the requirements of this aspect of regulation. Several actions by ACTEW including design of physical structures that enable it to carry out its obligations effectively assist attainment of substantive regulatory outcomes. The presence of structures like reservoirs and laboratories give regulators the assurance that the minimum conditions required to ensure good outcomes are present.

Regulation thus takes a hands-off approach, with ACTEW reporting periodically to ACT Health on the required indicators. Particularly instructive is that ACT Health does not even conduct parallel tests of water quality, trusting ACTEW to do that. Added to this, ACT Health and ACTEW have continuous interaction that occurs not only through reporting, but also through the Senior Executives Water Coordinating Group and the Chief Executive Water Group. As will be made clear in this chapter, ACTEW's accession to international and local standardisation bodies like the International Standards Organisation[28] system provide further evidence that ACTEW is qualified to carry out its duties well.

Regulation of drinking water quality manages risks that may face the public using portable drinking water. Water has a close interaction with the natural environment, and can bring risks of illness or death if not handled properly. It is thus unsurprising that several respondents saw ensuring provision of good drinking water quality as the major challenge of the ACT's water regulatory regime. As an ACTEW respondent explained:

> The definite number one regulatory priority for the ACT, from the community point of view, is the health requirement, providing a safe, clean drinking water product and ACT Health regulates that through our drinking water licence. It is always first and foremost in the community's mind that they want safe drinking water (Interview with Kirilly Dickson, 17 October 2005, Canberra).

Until the January 2003 bushfires, the ACT's water quality was arguably the best in Australia. As the Cotter Catchment is located in the Namadgi National Park, water quality management was easy because the catchment is protected from most potential pollutants especially farm animals and industrial pollution.

ACTORS IN DRINKING WATER REGULATION

The formal structure of drinking water quality regulation has the Department of Health and Community Care (ACT Health) as the designated regulator of drinking water quality. The General Manager of Health Protection Services is responsible for overseeing

[28] This is a global non-governmental body made up of standards organisations from countries around the world. The standards it promulgates, however, are observed by national governments.

implementation of the Drinking Water Quality Code of Practice on a day-to-day basis. Despite indicators in the formal organisational structures, which show ACT Health as regulator and ACTEW as the regulated agency, the ACT's approach to regulation of drinking water quality is effectively self-regulatory and allows ACTEW to conduct most of the activities necessary for compliance without external regulatory close supervision.

As ACTEW's contractor, ActewAGL conducts the day-to-day activities of delivering drinking water to homes and businesses in the ACT. Ecowise Environmental conducts tests to ensure that the water is of good quality. Being the holder of the Drinking Water Licence means that ACTEW, instead of ActewAGL, is accountable for maintaining drinking water quality. ACTEW thus maintains contact with the DHCC on water quality matters. When enquiries about drinking water quality come to ACTEW, ACTEW requests explanations from ActewAGL, which are relayed to ACT Health.

Ecowise conducts laboratory tests on the water at the treatment facilities and taps, the customer point of contact. Ecowise is a laboratory registered by the National Association of Testing Authorities (NATA). NATA is a government-endorsed provider of accreditation of testing facilities. The key physical, technical and other material resources necessary for carrying out this function are owned by ACTEW directly or indirectly through either ActewAGL or Ecowise Environmental.

FORMULATION OF THE REGULATORY INSTRUMENTS

Part of the strategy of building trust in the social regulatory space includes allowing ACTEW to participate in standard setting. The Drinking Water Quality Code of Practice (DWQCP) came into effect in March 2000 (ActewAGL, 2001a, p. 20). The Code was formulated through a consultative process that included the DHCC, ACTEW Corporation, ActewAGL and other health and water industry actors. Being a risk management instrument, the Code came about as a response to a public health scare that occurred elsewhere. ACT Health has explained:

> About six years ago, after the Sydney cryptosporidium water problem, the decision was taken that we will consider the supply of water as a public health activity in that if it is not done right, it can have a major impact on public health. So we set about working with the community and the industry to develop a code of practice, which will govern the way that water is supplied in Canberra, the Drinking Water Quality Code of Practice (Interview with John Woollard, 22 November 2005, Canberra).

The DWQCP outlines the levels of microbiological organisms and minerals allowable in water. It also sets out the procedures to be followed in the event of a public health crisis concerning drinking water. The DWQCP requires that ACTEW must inform the regulator of incidences of decline in water quality. Relevant information is relayed through ACTEW. What is especially notable about the handling of water quality reports is the relative informality of the procedures:

> If something wrong happens we are on the telephone to them [DHCC] right away, to explain the situation. We try to contact them right away and send them formal notice later (Interview with Kirilly Dickson, 17 October 2005, Canberra).

Informal exchanges characterise this regulatory space. It must be noted, however, that it is actually ACTEW that makes direct contact with ACT Health. To facilitate smooth exchange of information ActewAGL and ACTEW, have an intranet facility dedicated to monitoring water quality. ActewAGL's employees insert water quality information.

ACT Health depends entirely on ACTEW's reports in order to know what occurs in Ecowise laboratories while ACTEW has access to information on the intranet site mentioned. The relative informality of the application of the DWQCP is not accidental. To ACT Health the DWQCP was formulated to be a tool for facilitating regulation through dialogue, not command. Such a decision was taken deliberately so that:

> Rather than being a blunt instrument from a regulatory point of view, to beat the utility on the head with, we wanted it to be a code of practice that allowed us to develop a relationship with them and work together to achieve a quality outcome which is good, safe water (Interview with John Woollard, 22 November 2005, Canberra).

Lack of compliance with the DWQCP in the DHCC's view is not necessarily about non-occurrence of micro-organisms or harmful minerals in the water. Non-compliance is interpreted to be failure to report such instances when they occur. As explained by ACT Health, non-compliance in this area is very low:

> I suppose some of the non-compliance we have had in recent years has been minor stuff, and it is just being picked up ad hoc really, *there is no actual monitoring system if you like* where they come in and audit our business [emphasis added] (Interview with John Woollard, 22 November 2005, Canberra).

Placing trust in ACTEW both to ensure adequate water quality standards and report adverse water quality occurrences can be interpreted as construing compliance as the attainment of substantive water quality outcomes. While the regulator places trust in ACTEW to deliver water of appropriate quality, efforts are made to ensure that when things go wrong, such incidences are managed tightly between ACTEW, ActewAGL, Ecowise and the DHCC. According to the DHCC:

> If E.coli were found in the reticulation system we would work with ACTEW so they could indicate to us what their proposed course of action is, such as re-sampling or re-flushing the system, re-chlorinating the reservoirs and all that kind of corrective activity and we may put forward suggestions to say, what about if you do this as well? (Interview with John Woollard, 22 November 2005, Canberra).

If there is further failure by the DHCC and ACTEW to attain satisfactory outcomes, the two parties resort to the public health system in order to arrest any potentially adverse situations for public health. Such protocols are already built into the system:

> If there was a significant contamination in the system, we might go up to the general practitioners and say, 'listen, there is a bit of risk, there might be some thick coliforms in the water'. We would phrase it fairly carefully, 'and can you be on the lookout for an unusual cluster of gastro or something like that'. So we will up our surveillance of diseases that you would expect to see as a result of thick coli forms (Interview with John Woollard, 22 November 2005, Canberra).

RESULTS OF MONITORING

While the absence of regulatory supervision may imply laxity, the results of ACTEW's performance of drinking water quality have been impressive. In the year 2000, the DHCC came up with the Drinking Water Quality Code of Practice. This Code sets out protocols for drinking water quality and outlines the appropriate incident responses to water quality. ACTEW has been complying fully with it since it came into effect. Several measurements are used to gauge the appropriate levels of water quality. Such variables include fluoride levels, aluminium levels, turbidity, cryptosporidium and Giardia. Overall, ACTEW seems to meet the requirements of their drinking water licence as shown by table 7.

Table 7: Compliance to Water Quality Indicators

Type of Complaint	Comments	COMPLAINTS PER YEAR				
		2001	2002	2003	2004	2005
Blue or green water	This is water associated with the corrosion of copper pipes	14	25	19	0	4
Dirty water	This condition is associated more with system failure.	225	246	182	227	261
Other	A range of issues not categorised	4	6	3	7	6
Staining	These are issues caused by deposits dislodged from either domestic plumbing or washing of bathroom fittings[29].	0	3	1	0	2
Chlorine taste or odour	Chlorination is necessary for the disinfection of the water supply.	5	18	12	2	37
Taste (other)	Miscellaneous taste enquiries are investigated individually. These include bitter and metallic tastes experienced by customers.	23	40	13	5	14
White or air	This usually presents as cloudy water resulting from hot air bubbles generated by flushing the mains, hot water units or aerators on taps.	7	11	9	17	10
Total		286	363	245	263	334

Source: ActewAGL (2001a; 2002; 2003a; 2004a; 2005a).

[29] Again, ActewAGL flushes off the mains in order to solve this problem.

The meaning of compliance in drinking water quality

In table 7, the reports of disturbances in water quality would give the impression of a major problem. A closer look reveals that these occurrences concern the physical aspects of water such as colouring. While irritating, these lapses in water quality do not pose public health problems. Official records show that ACTEW has always complied with the regulatory requirement that compels them to report matters that pose direct public health risks such as the occurrence of Cryptosporidium and Giardia. ACTEW's annual reports usually indicate that it has complied with its Drinking Water Quality Licence (ACTEW, 2003, ACTEW, 2005a, ACTEW, 2004b). Since ACTEW has to clear compliance issues with Health ACT before it publishes its annual reports, its claims of compliance are accurate. Non-compliance by ACTEW is interpreted as lack of reporting of incidences that pose public health risks such as Cryptosporidium and Giardia in the water.

THE PROCESS OF DELIVERING WATER TO CUSTOMERS

ACTEW carries out drinking water quality management with minimal supervision. One reason for such trust is the presence of certain infrastructure prerequisites that assist in delivery of good water quality outcomes. These structures provide some guarantees that the regulated activity will be conducted appropriately. Among these water storage practices are catchment management and the design of water and wastewater reticulation infrastructure.

The Australian Capital Territory and the City of Queanbeyan in New South Wales obtain their water from the Cotter Catchment. Storing water in dams for certain amounts of time ensures that micro-organisms of faecal origin die off before the water is pumped into Canberra's water supply infrastructure. Whereas it normally takes the bacteria about three to four weeks to die off, ActewAGL holds the water for up to half a year in the storages. ActewAGL then treats the water before it distributes it for human consumption. The Mount Stromlo WTP treats most of Canberra's water supply. Owing to the high quality of the water from the Cotter Catchment, the Mount Stromlo WTP actually only treats water in the sense of adding fluoride, lime and chlorine (ActewAGL, 2001a, p. 3, ActewAGL, 2002).

To ensure further that drinking water quality is maintained at high standards, monitoring of water quality is performed at the water treatment plants (WTP) before the water enters the reticulation system. The monitoring at the WTP performs two major functions:

> Firstly, it indicates problems or changes in incoming processed water quality allowing ActewAGL to take appropriate corrective action, and secondly, monitoring allows ActewAGL to detect trends in water quality parameters that may be related to seasons (summer/winter or drought periods) or long term changes in the natural catchment processes (ActewAGL, 2002, p. 4).

WATER QUALITY IN THE RETICULATION SYSTEM

ActewAGL operates 44 reservoirs around Canberra. Once water has been treated at the various WTPs, it is transferred to the reservoirs where capacity in the various storages is about 900 ML of water. Regular inspections are carried out at the reservoirs to ensure that there has not been any intrusion. The reservoirs are cleaned out completely every three years (ActewAGL, 2002, p. 6).

Once the water leaves the reservoirs, it joins the reticulation system where it is delivered to customers. Several measures are taken to protect water from contamination even at this stage. Chief among these is that drinking water supply infrastructure enters in the front of the properties whereas the sewerage pipes exit at the back. The pressure inside the pipes is maintained at a level that keeps out external contaminants.

From the foregoing account, compliance with drinking water standards is implicit in the presence and maintenance of infrastructure and not necessarily only the attainment of certain levels of performance as represented by water quality standards. While quality standards remain important, the design and maintenance of the water and wastewater network also matter greatly. Separating the potable water pipes from those of sewerage ensures the integrity of potable water. Maintaining water pressure at certain levels keeps out external contaminants, while chlorination of water in the network kills off any remaining contaminants.

MANAGEMENT CHALLENGES IN THE REGULATION OF DRINKING WATER QUALITY

A major management challenge for regulating drinking water quality for the DHCC means securing access to information collected by Ecowise Environmental. This information is relayed through to ActewAGL, then ACTEW Corporation. Some of the problems this entails include ensuring the accuracy of information and ensuring that the information reaches the DHCC in sufficient time to enable it to act if necessary. The regulator confirms unequivocally that they do not conduct any tests of their own:

> We don't at this stage, we've chosen not to. Originally we did. When I came in here we used to conduct parallel testing for a while. We have also done, once or twice, an audit of the laboratory ACTEW used to make sure that their systems and processes are up to speed and they have been and we have been quite comfortable with those sorts of things (Interview with John Woollard, 22 November 2005, Canberra).

The level of cooperation between ACT Health and ACTEW takes centre stage in the performance of regulation. According to the regulator:

> You can develop a relationship and develop a level of trust remembering that there is still an obligation on the regulated people to...in this case, ACTEW, to do the right thing, and then put your trust in the fact that the threat of litigation and the level of trust you developed will mean they keep informing us of things. I am comfortable they do, we get notified of instances that occur, we work with them and deal with them on a regular basis and I mean when things go wrong they tell us (Interview with John Woollard, 22 November 2005, Canberra).

To bolster this regulatory relationship ACTEW is obliged to publish drinking water quality reports on a monthly basis, and put them on their web page. Annual reports are freely available to any member of the public who requests them. The objective of hosting an online water quality-monitoring program was suggested by ACTEW to the DHCC and serves two functions: as an internal control instrument and as an external accountability mechanism. According to ACTEW's former CEO, Paul Perkins, the online water quality report afforded the management team an opportunity to ensure that the requisite information was always available in a timely manner. To ensure external accountability, on the other hand, it means that:

> Any citizen, regulator or inspector can actually go to have a look at that. I did that because I could not write a system and have my people follow it. The biggest problem is negligence in the plant (Interview with Paul Perkins, 15 November 2005, Canberra).

The efficacy of the program, however, is open to question. This is due not so much to ACTEW's fault, but the possibility that the public either does not know about it or are not sufficiently interested in monitoring water quality:

> The beauty of it is nobody can say we are not accountable. We are. The trouble is there is nobody out there reviewing it. Nobody! (Interview with Paul Perkins, 15 November 2005 Canberra).

A further concern for drinking water stems from growing prospects of the use of grey water. With the rise in water scarcity, people are likely to turn increasingly to grey water to augment their supplies. The drought and the 2003 bushfires have severely affected water availability and quality, necessitating the need to augment the ACT's water supply through source substitution. ACT Health stipulates the nature of the problem:

> People have begun to look at alternatives for water re-usage and by that I mean effluent re-use. From a health point of view, this offers us some challenges to get the right balance between health protection and water conservation, and that is a pretty tough balance to get (Interview with John Woollard, 22 November 2005).

The need for such balance is vital because:

> ... The capacity of the average person to be able to manage that system is probably pretty low. So we are focusing more on seeing any recycling wastewater being done more on a large scale (Interview with John Woollard, 22 November 2005, Canberra).

In response to this challenge, the DHCC, other social regulators and ACTEW combined to formulate a set of guidelines for the use of greywater in Canberra. 'Greywater Use: Guidelines for Residential Properties'. The booklet outlines the obligations of property owners and those of the relevant public bodies in the implementation of greywater reuse. As in most regulatory matters in the ACT, the Senior Executives Water Coordinating

Group (SEWCG) discussed the guidelines. The discussion enabled a negotiation process that ensured the major actors in the network had made their contributions to the document before it became 'law'. The willingness of the SEWCG and the CEWG to meet and discuss the guidelines attests to the consensus-building approaches to regulation in the ACT. However such regular meetings also signify the exchange of ideas, knowledge and information by a group of organisations with responsibilities to manage water quality. Both the SEWCG and the CEWG afford actors the space to exercise discretion in defining the parameters of policy implementation.

INFORMATION MANAGEMENT

The use of information to manage public perceptions is greatly favoured in policy environments where consensus has to be fostered. Information can also be used selectively to hide adverse information from the public. The need to manage public perceptions can often clash with that of keeping the public informed. In drinking water quality, issuing a boil water notice is one of the final steps in the management of drinking water quality during times when water quality is compromised. While there are no indicators that this is the case in Canberra, the use of public information presents a dilemma. ACT Health pointed out that during the 2003 bushfires, there was a boil-water notice, which nevertheless was a difficult decision to arrive at despite the situation. According to ACT Health, 'we are into diabolical trouble in Canberra if we issued a boil water notice' (Interview with John Woollard, 22 November 2005, Canberra).

Strict control of information does not need to appear as cynical, however. Lessons from Sydney show that it can be necessary to help avoid mass panic in the community. Public reactions to poor water quality are often:

> Emotional and whatever and gets out of hand, and in every case, the last five major crises in Australia have not been real. In every case it has been about bad testing by government laboratories. And people in the labs who are genuine greens and ignorant and both actually ran and shouted crisis and there was none. The crypto crisis in Sydney is probably the biggest example (Interview with Paul Perkins, 15 December 2005, Canberra).

According to one informant, nobody fell sick in Sydney, a view supported by Sheil and Leak (2000). Problematically, however, there were no pre-agreed channels of dealing with the circumstances that arose and the media's reporting led to widespread panic.

REGULATION OF ENVIRONMENTAL FLOWS

Increasing environmental pressures due to industrialisation, farming and other human related causes have led to degradation of the natural environment. Natural causes like droughts have also taken their toll on the Australian ecology; lesser water is available for downstream uses. The ACT has not escaped this problem with the recent drought leading to water restrictions. The expansion of human settlement and agricultural land in the ACT and its environs has also led to disturbances in the natural flow of watercourses. Consensus has therefore been reached in recent years of the need to set aside water for ecological uses, and this has been done through both market-based mechanisms for water allocation and establishment of water entitlements for the environment (Environment ACT, 1999, p. 3).

LEGISLATIVE INSTRUMENTS

The ACT has a set of Environmental Flow Guidelines (EFGs). EFGs are made under authority of the *Water Resources Act* 1998, which are the major statutory instrument regulating water allocations. The Act has ensured the institutionalisation of EFGs through its stipulation of the protection of waterways from damage where possible and the reversal of damage that has occurred previously. EFGs manage water for the sustenance of economic and social well-being in the ACT whilst protecting the ecosystems. The EFGs, a set of standards, gives clearer meaning to the *Water Resources Act.*

OBJECTIVES OF THE ENVIRONMENTAL FLOW GUIDELINES (EFGS)

The major objective of EFGs is to set out the methodology by which the ACT Government calculates the amounts of water that ACTEW has to release to the environment. Besides setting the methodology for allocating the ecological water needs, EFGs are a legal instrument that enforces the environments' claims to water. The EFGs are defined as:

> The stream flow necessary to sustain habitats (including channel morphology and substrate), encourage spawning and the migration of fauna species to previously unpopulated habitats, enable the process upon which succession and biodiversity depend, and maintain the desired nutrient structure within lakes, streams, wetlands and riparian areas (Environment ACT, 1999, p. 3).

By using available scientific information, environmental flows quantify the amounts of water that have to be released into the environment. According to the regulator, Environment ACT, EFGs:

> Set the rules, the criteria for determining what environmental flows will be required to protect the aquatic systems, they tend to be rules, which are translated into quantities of water. For instance, in the environmental flow guidelines, there might be a rule or a guideline saying protect the base flow defined as the eightieth percentile flow and in the water resources management plan that might be converted into 500 mega litres of water in the ACT. So there is a rule turned into a volume (Interview with Peter Liston, Environment ACT, 16 November 2005, Canberra).

The implementation of a scheme such as EFGs might appear simple at first; ACTEW has to release certain amounts of water downstream from its four dams. A quality dimension complicates the EFGs, however.

QUALITY ASPECTS OF EFGS

While the EFGs seem to be mainly about ensuring that the environment obtains appropriate quantities of water, there is also a quality aspect to the programme that makes compliance difficult. One requirement for implementing EFGs is timing. While ACTEW seems to comply, easily surpassing the targets set, the timing of releases is also important. According to Environment ACT:

> When requiring environmental flow releases from reservoirs, which are important in our water supply catchments, we can really compromise the value of those releases if we release very cold water. Normally in a river flowing down in ambient temperatures, I mean, if you keep it in a reservoir and you release the bottom water, it is much, much colder. Now, often the animals down stream are keyed to a particular temperature and they might use that as a signal. Fish may use that for breeding. If spring comes and the water temperatures rise, because it is from the bottom of the reservoir, even if you release the right volume, the value of that is compromised because it is cold (Interview with Peter Liston, 16 November 2005, Canberra).

EFGs also represent a tough policy choice for regulation. EFGs represent an implicit contest between the environment and people for water. A dilemma arises in times of low rainfall. The conflict between human and ecological needs has led to a rethink. During drought:

> That is the time when ACTEW would want to be saving every drop. So, we have come up with a scheme which we call drought flows. During drought, the environmental flows change, they reduce, from, well, in a number of ways, so that they are significantly less than the flows in normal years. This is to try and strike that balance between protecting the environment and protecting the water supply (Interview with Peter Liston, 16 November 2005, Canberra).

EFGs present the need for closer regulatory presence. However, in a typical ACT approach to these matters, there is minimal regulatory oversight.

TRUST IN KNOWLEDGE OF EACH OTHER'S CAPACITIES

The lack of close monitoring of EFGs by Environment ACT might be interpreted as a neglect of their duty. ACTEW acknowledges that Environment ACT places faith in ACTEW's capacities to perform the job, instead of a closer monitoring. Asked how Environment ACT could be assured about ACTEW's claims about flow releases, ACTEW's policy adviser stated:

> Um, you mean because all of the flow data is coming from ACTEW as well? I think, umm ... it is a good question ... I don't know actually...*they are trusting us basically* [emphasis added] (Interview with Ken Horsham, 23 November 2005, Canberra).

At a closer look, Environment ACT's claim that they trust in the choice of the subcontractor because of its reputation reveals part of the answer to how trust is generated and maintained in a regulatory space. One may question the fact that ACTEW half owns Ecowise Environmental and has members of the board of directors who are top managers at both ActewAGL and ACTEW. Ecowise has a good reputation and therein lays the explanation of the trust. Their operation of the Lower Molonglo Water Quality Control

Centre is evidence of their reputation. One regulator's narrative demonstrates the strength of that reputation:

> I have seen Paul Perkins take a glass of water from just below the Molonglo water treatment plant and drink it (Interview with Rosemary Purdie, ACT Environment Commissioner, 15 December 2005, Canberra).

Furthermore, the Lower Molonglo Water Quality Control Centre regularly undergoes testing through the International Standards Organisation (ISO). Indeed, ACTEW is Australia's first entity to be granted an ISO 14001 for its environmental management system (EMS) in 1996 (Thompson, 2001, p. 96). As the LMWQCC discharges wastewater into the Murrumbidgee River, it enables ACTEW to meet its EFG requirements easily.

ACTEW continues to receive recognition for its environmental awareness. Examples include the improved grading in 2000 of the LWMQOCC to 4 stars, where 5 stars are the highest awarded by the National Safety Council of Australia. In 2003, ActewAGL's Water Division was audited for qualification and granted ISO 14001 for its environmental management systems (ActewAGL, 2004b, p.6). ActewAGL in 2001 completed a denitrification[30] study that has allowed it to reduce total nitrogen output from its wastewater related management (ActewAGL, 2001b, p. 18).

ACTORS

The formal institutional arrangements for securing adherence to EFGs designate Environment ACT as the regulator. ACTEW is the regulated entity. Compliance with EFGs is obtained through a self-reporting mechanism whereby ACTEW is required to report the amounts of water that they release into the environment. Environment ACT does not conduct its own supervision. ACTEW, on the other hand, performs this function through sub contractual arrangements, which the regulator takes a keen interest in:

> We require they conduct the monitoring and provide it back to us. Normally they go to a third party who conducts that monitoring for them. They tend to select that third party. Generally they tend to select a party that is local, that we know very well, in

[30] Denitrification is the process of reducing nitrogen compounds in water.

the ACT, which is a NATA registered laboratory (Interview with Peter Liston, 16 November 2005).

The third party mentioned by Environment ACT is Ecowise Environmental. In 2005, through some acquisitions, Ecowise became Australia's largest laboratory of its kind (ActewAGL, 2005c, p. 42, Scott, 2003). ACTEW and Environment ACT often subcontract outsiders such as universities in carrying out some aspects of Environmental Flow Guidelines implementation. Some of the parties that have been engaged for different aspects of the EFGs are the Australian National University's Centre for Resource and Environmental Studies (CRES) and the University of Canberra's Cooperative Research Centre for Catchment Hydrology (CRC).

COMPLIANCE EXPERIENCES WITH EFGS

ACTEW's compliance with EFG requirements concerning releases is represented in Table 8 below. Overall, ACTEW seems to surpass the requirements significantly.

Table 8: Environmental flow releases-2001-2004

Outflows	Years	2001-02	2002-03	2003-04
		Corin Dam		
Actual		72772 ML	36013 ML	35926 ML
Required		17026 ML	15405 ML	11426 ML
		Bendora Dam		
Actual		23728 ML	25774 ML	26766 ML
Required		23447 ML	26103 ML	15848 ML
		Cotter Dam		
Actual		35779 ML	36890 ML	68446 ML
Required		35888 ML	37267 ML	18488 ML
		Googong Dam		
Actual		14640 ML	8198.6 ML	2295 ML
Required		12498 ML	7043 ML	1375 ML

Source: Environment ACT: (2001; 2002; 2003; 2004; 2005).

Table 8 above paints a good picture of ACTEW's compliance with releases required under the EFGs. ACTEW exceeds the required minimum environmental flow releases from each of the four dams. There are only three instances of non-compliance noted here, two of them at the Cotter Dam in 2001-02 and 2002-03. This is attributable to two possible

circumstances, the drought and the bushfires. As the Cotter Dam is the ACT's primary water source, human consumption considerations prevailed over ecological considerations.

GUIDELINES REVIEW: REGULATORY FLEXIBILITY OR LOWERING THE BAR?

The existing circumstance of trust allows Environment ACT and ACTEW the flexibility to adjust responsibilities and expectations in view of changing circumstances. EFGs are an example where ACTEW initiated a process of lowering initial regulatory obligations because they made compliance difficult. This revision of regulatory standards came before the period stipulated in the guidelines for such revisions elapsed.

Article 1.5 of the EFGs states that the guidelines are to be reviewed every five years in order to 'determine if targets and thresholds chosen are the most appropriate for individual water bodies' (Environment ACT, 1999, p. 7). While EFGs are to be reviewed every five years to incorporate new knowledge, the trust and cooperation between ACTEW and Environment ACT lead to continuing opportunities to adjust and readjust expectations. During both formulation and implementation stages, ACTEW's role has been to:

> Provide advice in terms of the implications of changes in water supply security and we also provide them some technical advice because we have some technical expertise in water quality issues, catchment management and ecological science experts as well (Interview with Kirilly Dickson, 17 October 2005, Canberra).

When it came to implementing EFGs initially, ACTEW's judgment was that the guidelines were unreasonable. They did not hesitate to point this out. Upon ACTEW's representation, the definition of what is a 'drought' was reconsidered. In the original guidelines, a 'drought' was defined as occurring when:

> In nine of the preceding 12 months, flows into the Corin Dam, Bendora Dam and Googong Dam were less than the median monthly inflows, and the total amount of water in ACT water supply reservoirs is less than 50 per cent of total storage capacity (Environment ACT, 1999, p. 16).

ACTEW's misgivings with this definition was that, it was possible that during a drought, a month of above average rainfall in a nine-month period of below average rainfall could oblige the utility to release normal flows. On ACTEW's representation the definition was changed to:

> They (EFGs) have to have nine consecutive months of less than average inflows into all of our storages and of course every now and then you will have one month of more than average rainfall ... well, so the whole definition was dropped. Although that was written in the guidelines, as we went into the drought we negotiated with Environment ACT, and we all realised that it was not sensible given that our storages were falling below 50 per cent (Interview with Kirilly Dickson, 17 October 2005).

Environment ACT supported ACTEW's position. It further pointed out that water quality was another reason why it was imperative to redefine 'drought'. As droughts led to poorer quality water, this was taken into consideration with the new definitions. According to Environment ACT the older definition was inflexible:

> It did not take into account things like water quality that became very important in 2003 after the fires. Even though we had lots of water in our catchments, we could not use any of it because it was poor (Interview with Peter Liston, 16 November 2005, Canberra).

This continual revision of guidelines has led to further modifications. Another innovation has been differentiating between what is an 'agricultural' drought and a 'hydrological' drought. Hydrological droughts affect ACTEW's capacity to supply water, while agricultural droughts relate strictly to the effects of the drought on farming. Agricultural droughts are declared following the lead by New South Wales:

> When we hear about drought declaration in NSW, or the entire ACT is declared [drought stricken], that tends to be what we term agricultural drought. There has been insufficient rainfall to support agricultural practices (Interview with Peter Liston, 16 November 2005, Canberra).

EFGs demonstrate willingness by the water policy community to adjust and readjust regulatory targets to suit all concerned. That ACTEW is the main actor within the network

is clear. ACTEW initiated the discussion to change the EFGs requirement when it could not meet those requirements and thus led to the change in the existing standards. EFGs were arguably over-burdensome to the ACT because they allowed the ACT to consume only 35 per cent of their water, passing the rest downstream, at no charge to farmers and other people, while continuing to charge ACT residents for the water they use. Internal discussions within the network allow ACTEW and its regulators a chance away from the glare of the public and the media to exercise their discretion in attempting solutions to policy problems.

EFGs AS INTERDEPENDENCE

Water travels irrespective of political boundaries, thereby bringing inter-jurisdictional regulation into focus. Being the biggest city inside the Murray-Darling Basin, Canberra is the biggest consumer of water and is therefore charged with releasing environmental flows to downstream users as part of its obligations in the MDBC. Yet there is still no agreement on what the cap on Canberra's water use should be. As shown in table 8, Canberra has been meeting its requirements of releasing environmental flows. The ACT also treats used water at the Lower Molonglo Water Treatment Centre. The ACT takes its environmental flow duties seriously-it is Australia's highest releaser of such flows:

> I have some figures somewhere, proportional to the flows we get in, we let more water out than any other utility, and that is quite sensible because we are a lot higher up in the basin, and we have a lot of downstream users to think about. We have a lot of people who need water downstream and we need to consider that too (Interview with Kirilly Dickson, 17 October 2005, Canberra).

The Water Services Association of Australia (WSAA) report lends credence to these claims (WSAA, 2004, p.18). Because of the ACT's obligations to return certain amounts of water to the Murrumbidgee River, ACTEW's compliance with EFGs is crucial. For that reason, the ACT Government depends on ACTEW to comply while the goodwill generated by ACTEW's performance allows for compromises between it and Environment ACT. Environment ACT, it has to be remembered, is an executive government department also partly responsible for ensuring that the ACT complies with MDBC provisions.

REGULATION OF WATER RESTRICTIONS

Water restrictions are engaged when the ACT's water storage levels go below fifty per cent capacity (ACT Government, 2002). Water restrictions are therefore used during emergencies to control the amount of water consumed by ACTEW's customers. Though the history of water restrictions in the ACT dates as far back as 1967, the most recent circumstances that led to restrictions is the current drought (ACTEW, 1994, p. 84). While the long time lag between successive uses of water restrictions may be testament to the ACT's water endowment, it is also attributable to the reluctance of the ACT Government to impose restrictions. Water restrictions have long been regarded as a sign of water policy failure. Historically water shortages were invariably met by construction of more storage facilities. The shift in emphasis from water resource development to conservation means that restrictions have become part and parcel of water demand management in the ACT.

ACTORS

The Government department charged with the implementation of the water restrictions scheme is the Chief Ministers' Department (CMD). But ACTEW is crucial. A CMD informant explained its role in the scheme:

> They [ACTEW] do it for us. They do it in conjunction with us, because ACTEW at the end of the day is really a utility and in terms of the water restrictions regime, they have to work through our minister and us (Interview with Stuart Chapman and Karen Aguilera, 2 November 2005).

Unlike most regulatory programs in the ACT, water restrictions directly engage ACTEW as regulator. ACTEW has set up the Drought Advisory Services to implement the scheme. From a regulatory perspective this arrangement raises questions particularly because ACTEW is the designated regulator of water restrictions while also having a direct interest in selling more water. As will be demonstrated in the following sections however, ACTEW is engaged in the water restrictions scheme in order to utilise its capabilities to attain the aims of the scheme.

FORMULATION OF THE SCHEME

The interdependence characteristic of water regulation in the ACT was demonstrated at the beginning of the water restrictions scheme. It appears ACTEW was at the forefront of formulating the water restrictions scheme. While the CMD announced the restrictions, ACTEW carried out the background work in designing the scheme. An ACTEW representative called on the Chief Minster and Minister for Environment, Jon Stanhope, when the water levels were declining and proposed they come up with a scheme:

> Meanwhile you and I better agree what we'll say to the public-'we are going to have some voluntary restrictions'- and we did. I stood next to him by an empty dam and called on the people to help. Not a heavy-handed approach but a voluntary approach (Interview with Paul Perkins, 15 November 2005).

THE WATER RESTRICTIONS SCHEME

The *Utilities (Water Restrictions) Regulation* 2000 is the enabling legislative instrument for water restrictions in the ACT. The City of Queanbeyan (QCC) has its own restrictions that are dependent on ACTEW declaring restrictions in Canberra. When Canberra undergoes restrictions, Queanbeyan automatically follows suit. Enforcement in Queanbeyan is, however, left to the QCC.

What is unusual about the *Water Restrictions Act* is that it is subordinate to the *Utilities Act* 2000. The *Utilities Act* covers aspects of management of utility licenses whereas the *Water Restrictions Regulation* 2000 is concerned about the management of the water resource. The Water Policy Manager in the Chief Minister's Department explains why:

> The *Utilities Act* is a funny place to place the water restrictions. Due to the drought the Act was out fairly quickly because we had to do something quickly (Interview with Stuart Chapman and Karen Aguilera, 2 November 2005, Canberra).

The urgency of declining water levels forced the appending of the *Restrictions Act* in a somewhat 'unnatural' place, the *Utilities Act*:

> Rather than go through the ACT Legislative Assembly process of getting a bill drafted and getting it presented ... a regulation is far easier, we just use the

> regulation and the minister announces that this is going to be put into place and there is usually a bit of media coverage about it (Interview with Stuart Chapman and Karen Aguilera 2 November 2005, Canberra).

The water restrictions scheme, despite its relative acceptance in Canberra, is a highly regressive policy. It has financial, economic and political inconveniences. How it is implemented is crucial to its success.

CREATING A 'USE IT OR LOSE IT INCENTIVE'

One problem facing implementation of water restrictions is that restrictions may induce residents to use water even when they do not need to, because they might lose their chance. One attendant during the water tariff expressed his frustrations:

> I am sorry I could not get here this morning to hear people from ACTEW, but today was my watering day under the odds and evens system so I had to stay home and water my garden. I was really cranky about that and I thought, 'Bloody ACTEW with your damn odds and evens thing' (Stevens, 2004, p.69).

The foregoing citation must not come as a surprise since restrictions are coercive. They stipulate when people may water, the implements they are forbidden to use, and prescribe penalties for non-compliance.

The cost of restrictions

Water restrictions also impose financial costs, so much that to some businesses, non-compliance may be the better option. Costs due to restrictions include the money that ACTEW has to forego through loss of water sales, their primary source of income. An ACTEW perspective is that water restrictions are harmful to it because:

> Water restrictions do have big implications on our water supply function, basically because as a water business, some of our costs are very fixed, doesn't matter if we produced 65 gigaliters of water a year or, 55 gigaliters. We still have to employ the same amount of staff, the same upgrades to our systems because they are falling apart, the same licence reporting ... all our business operations stay at the same level but we sell less water (Interview with Kirilly Dickson, 17 October, Canberra).

The costs on society are substantial. The Centre for International Economics and the NERA/AC Nielson study commissioned by ACTEW found that the ACT community in general incurred quite high costs because of restrictions. Costs grow with the level of restriction.

Table 9: Cumulative Financial Costs of Water Restrictions

Level of restrictions	Current Cost ($million)	Projected costs in 2025 ($million)
Stage 1	3.5	9.5
Stage 2	16.1	41.5
Stage 3	60.1	157.6
Stage 4	81	215.1
Stage 5	162.8	428.9

Source: ActewAGL: (2003c, p. 71)

Water restrictions represent a difficult choice for the community in terms of the need to select between preserving water and maintaining parks and gardens. Canberra's character as a garden city is a concept held seriously by some residents as one of them stated during an ACTEW consultative meeting on water restrictions:

> Green grass is nice to sit on. Canberrans do a lot outdoors. So if it looked brown, less people would go out, so we would lose something. That's why we pay our rates. We choose to have them (Canberra landscapes) nice (ActewAGL, 2003c, p. 58).

A strategy to induce compliance with restrictions is by using exemptions. The existing water restriction scheme includes provisions for the utility to exempt consumers from restrictions if the restriction would cause the consumer serious detriment. The aged and the infirm are normally exempted, as are some businesses, schools and other public places. Exemptions thereby assist in reducing the antipathy that some may feel towards the scheme.

Table 10: ACT Water Restrictions Scheme

Stage	Private Gardens	Overall storage level at which storage invoked	Estimated reduction in water demand
1	Sprinklers 6am-8am, Handheld hoses, buckets, etc at any time	50 per cent	5 per cent
2	Sprinklers 7pm-11pm, Handheld hoses, buckets, etc at any time	40 per cent	20 per cent
3	No sprinklers, Hand held hoses 6pm-8am, Buckets at any time	30 per cent	40 per cent
4	No sprinklers, Handheld hoses 7pm-11pm, Hoses any time	20 per cent	55 per cent
5	No sprinklers, No hoses, Outdoor watering restricted to reuse of used water only	15 per cent	60 per cent

Source: ActewAGL: (ActewAGL, 2003c, p. 71)

Despite the use of ActewAGL in most of ACTEW's licensed activities, ActewAGL does not have an explicit role in the implementation of the water restrictions. Its participation in the scheme is not publicly apparent, beyond their assisting ACTEW Corporation with modelling.

ActewAGL's minimal participation in the scheme contrasts sharply with implementation of the community rebates scheme where government subsidises the fitting of water-efficient devices in homes. The logic of using ACTEW rather than ActewAGL for this scheme is that ACTEW already has a relationship with the community through its water supply and sewerage activities. On closer examination, however, this justification is somewhat weak since it is ActewAGL as ACTEW's contractor that performs all the customer service and related functions for the delivery of water services. The real reason for keeping ActewAGL out of the water restrictions is that the scheme is unpopular:

> The water police are ACTEW people, not ActewAGL. The reasons for doing that is that it doesn't impact on the customer relationships that ActewAGL has with the users as well, so you've got to think through the roles a bit. One of the concerns at the time, that if we are going down this conservation and restrictions path, what impact does that have on customer relationships, and so that was one of the reasons on the separation of the roles in there (Interview with Ken Horsham, 23 November 2005, Canberra).

The Drought Advisory Unit that runs the water restrictions is an entirely ACTEW-funded operation because the designers of the water restriction scheme did not want water restrictions jeopardising the image of ActewAGL.

COMPLIANCE THROUGH EDUCATION

Implementing restrictions faces challenges since people lose not only money but also their gardens in the process of complying with restrictions. To solve this problem, the *Water Restrictions Act* is designed to gain compliance through gradual enforcement. By interpretation, the water restrictions enforcement approach in the ACT is designed to follow a model of compliance based on responsive regulation (Ayres and Braithwaite, 1992).

The water restrictions scheme uses consensus-building strategies to engender the support of consumers so that they comply with the scheme. Such an approach seeks compliance through voluntary action on the part of the customers stepping up the level of coercion in the event of failure to observe restrictions. The process is designed to culminate in the regulator cutting off supply if restrictions are persistently ignored. According to ACTEW's former chief executive who was instrumental in design of the scheme, emphasising gradualism of compulsion in this approach to compliance was deliberate. It was intended to put ACTEW in good legal stead if enforcement were to be challenged in the courts. The logic behind this 'tit-for-tat' approach to enforcement is that:

> We give the warnings and if you do not heed the warnings ... all those things, so they hold up in court, you will not see that in any of the public administration manuals in Canberra. To make that work, I deliberately wanted to make the culture different from the old municipal regulatory culture (Interview with Paul Perkins, 15 December 2005, Canberra).

Sanctions available to ACTEW against non-compliers include adjusting the tap and any other relevant equipment to stop such contravention. Failing that, supply may be cut. Consequent contraventions can be followed up through the power of ACTEW's personnel to enter the premises, and take action as allowed under section 16 of the *Water Restrictions Act*. The Act also allows for water supply to be terminated as a measure of last resort.

So far, despite numerous telephone calls to report contravention (see table11), ACTEW has never terminated supply to any homes. Part of the explanation is that there is a clash between the *Public Health Act* 1997 and the *Water Restrictions Act*. The *Public Health Act* does not allow disconnection of anyone's water for failure to comply with restrictions or any other law. The health regulator explains its stand on the matter:

> What I know though is that you could prosecute repeated cases of violation. However, we as the Health Department will never agree to a family of five having their water cut off for any reason. It is not going to happen, but we have never had a discussion between the agency and ourselves (Interview with John Woollard, 22 November 2007, Canberra).

Perhaps it is the haste in which it was designed that the *Water Restrictions Act* recommended supply cut off? Mr Perkins explained:

> There is no power in the normal *Water Resources Act*. We are obliged to provide water. There is no power in the legislation despite what is written. You can argue it is there, but it is really meant as an inspectorial power to turn the tap off, not disconnection from the supply (Interview with Paul Perkins, 15 November 2005).

While the above statement clarifies somewhat the positions of the various actors, even restricting the flow of water to a property due to non-payment is not known to have occurred:

> The only realistic penalty is to restrict the flow, but I am not aware of that ever being implemented. It is in the legislation but I have never seen that happening (Interview with Kerrie Brotherton and Bill Pearcy, 3 November 2005, Canberra).

By interpretation termination of supply is bad for ACTEW's and the ACT Government's image. Regulation is therefore managed to ensure that political and other fallouts do not occur through cutting supply.

MANAGEMENT CHALLENGES AND THEIR RESPONSES

Implementing a coercive, costly scheme like water restrictions is problematic. It faces resistance because it imposes costs on users and there are inherent conflicts of interest in implementation.

CONFLICT OF INTEREST

Given the interest ACTEW has in selling water, does ACTEW's pre-eminence in the scheme represent a conflict of interest? Legislative Assembly members have concerns about this:

> Shadow environment minister Vicki Dunne said ACTEW's Statement of Corporate Intent, despite its goals of reducing per capita water consumption by 12 per cent by 2013 and 25 per cent by 2023, showed a forecast increase in profit after tax from about $56million in 2006, to $75million in 2008.
>
> There has always been a conflict with ACTEW as a provider of water and as an arm of Government in terms of delivering the water efficiency policy. I think ACTEW tries as hard as possible to be servant to two masters. For ACTEW as a financial organisation, their primary concern is to its shareholder. It is actually the job of Government to address the environmental issues
>
> *The Canberra Times*, Wednesday, 31st August, 2005, http://canberra.yourguide.com.au/detail.asp?class=news&subclass=local&story_id=420126&category=General+News&m=8&y=2005

Both the Chief Minister and ACTEW CEO gave a rebuttal on the same day Mrs. Dunne raised her concerns. According to the *Canberra Times*:

> Mr Costello and Chief Minister Jon Stanhope both denied any conflict exists, saying a pricing mechanism existed through the Independent Competition and Regulatory Commission to compensate ACTEW for revenue lost because of restrictions and that, historically, ACTEW had erred on the side of restrictions ahead of profits.
> *(Canberra Times*
> http://canberra.yourguide.com.au/detail.asp?class=news&subclass=local&story_id=420126&category=General+News&m=8&y=2005
> Accessed on 31st August, 2005)

While the ACT Government and ACTEW have rebutted allegations of conflict of interest, a shadow of suspicion will always remain. The more water ACTEW sells the more money

accrues to the Treasury and the Chief Ministers' Department, both of which are shareholders in ACTEW.

Are exemptions a way of 'compensating' ACTEW?

A high proportion of applicants seeking exemption are successful. Data from ACTEW shows that in 2003-04, 6 770 out of the 7650 applications for exemption succeeded; in 2004-05, 12 160 were made with 11 670 approved. ACTEW's communications manager pointed out that exemptions are based on need. While this is commendable, in the interest of separating management from operation and regulation, should not the ACT's social services departments do this? Such departments are better placed to make such assessments as they form part of the primary reason for their existence.

EDUCATION: MEANS OR ENDS?

Seeing that water restrictions are unpopular, ACTEW has resorted to use of communication and education to gain compliance from consumers. A criticism of this approach might be that regulators resort to making education the primary objective and avoid taking more punitive measures such as imposing fines, diluting the possible impact of major regulatory objectives. For instance, from table 11 below, it appears that the level of reports as compared to infringement notices is low.

Table 11: Reports on Restrictions and Infringement Notices

Period	Reports	Infringement Notices
2002-03	1	0
2003-04	474	18
2004-5	1 329	149
Total	**1 084**	**167**

Source: ACTEW's communications office

Responding to why there were so few infringement notices compared to the number of reports given to ACTEW, ACTEW's communications manager stated that some of the infringement tickets would have been withdrawn. Moreover, in order to garner more compliance:

> ACTEW is working to build on the *already high level of public awareness and support* [emphasis added] (Interview with Marlene Stolts, ACTEW, 6 February 2006, Canberra).

There is consensus in the ACT that high levels of awareness exist about shortage of water. ACTEW increases its television and radio advertisements as the level of restrictions increases. During the 2003-04 water restrictions, ACTEW diligently followed the legal stipulation that they be announced in advance. These announcements are promulgated at least two weeks before commencement of restrictions.

'STOP THE DROP' CAMPAIGNS AS MOBILISING CONSENSUS

A further approach to softening the coercive approach of water restrictions is backing up the program with multimedia information campaigns. In the ACT, these are known as 'Stop the Drop' campaigns. The essence of Stop the Drop campaigns is reinforcement of the message about water scarcity. This objective is approached with a number of multimedia-based strategies like large glossy posters on buses, bookmarks, and school essay competitions.

Strategies also include ACTEW's Xeriscape gardens that demonstrate some less water intensive gardening methods. Recently ACTEW completed building model water-efficient houses in Canberra that will be open to the public for the next two years. ACTEW, ActewAGL and the Canberra Investment Corporation financed the Eco-living Exhibition. The project 'demonstrates environmentally sustainable design principles that deliver water and energy savings at a range of costs to suit every budget'. http://www.actewagl.com.au/default.aspx?loc=/eco-livingexhibition/intro.htm) Accessed on 27-02-2005.

According to one of ACTEW's policy advisers:

> The public awareness and information program campaigns, Stop the Drop, is an ActewAGL-ACTEW initiative. They meet all the costs of that. That is really the utility realising that they have got a finite resource and customers need to be alert to efficiency in that process. It is actually not about them making money, it is about

> conserving water, and so ACTEW partly do that and sometimes government run their own information campaigns which we support (Interview with Ken Horsham, 23 November 2005, Canberra).

The 'Stop the Drop' campaign also uses local celebrities to get the message about water scarcity across. Simon Woolford, captain of the local rugby league club, the Canberra Raiders, is one of ActewAGL's 'water ambassadors'. Often he makes television appearances with Cedric Bryant, a celebrity landscaper, to entreat Canberra residents to 'stop the drop'. Woolford and Bryant also give tips on how to save water by a variety of simple means such as washing their car on the lawn.

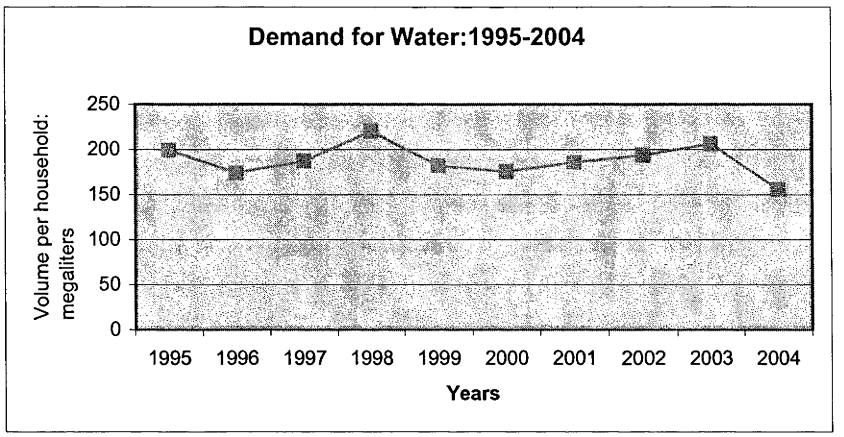
EVALUATING WATER RESTRICTIONS

After a period of two years in operation, the question might be posed; did water restrictions give the desired outcomes? There are several indicators to the effect that they did in fact reduce the amount of water used. Caution is in order here however. Water restrictions work in tandem with other regulatory strategies such as water tariffs and public information and education. Credit for reduction in consumption cannot be made easily. However Asoka Wijaratne of ActewAGL is quoted as saying restrictions saved Canberra lots of water. According to Wijeratne:

> If, for example, we didn't have restrictions and hadn't saved water our storages now would be around 25 per cent and that means we would almost be in stage five restrictions ... by having restrictions and by the community complying with the restrictions we have prevented future hardship (ABC News online: '*Restrictions save 8 months water*' (Accessed at http://www.abc.net.au/newsitems/200411/s1251000.htm Date accessed: 06-02-2006)

Overall, water restrictions appear to have reduced water consumption in Canberra and can, with the necessary caution, be passed as effective. Figure 16 below also shows a veritable decline in water consumption in the ACT in 2004 when restrictions were in full force.

Figure 16: Water Demand in the ACT: 1995-2004



Source: (ACTEW, 2005b, p.11).

EQUITY

Since water restrictions are generally applied uniformly to households, economic and other sectors, they appear to be an equitable tool whose aim is to ensure longer lasting water supply during times of drought. While the discretion given to ACTEW to grant water exemptions may actually reinforce equity, there are questions to be raised as to why it is that ACTEW awards such exemptions, given its interest in selling water. Exemptions may be inequitable. Churches and schools already benefit from public funding because government foregoes revenue by meeting half their water bills as community service obligations. When they also benefit from being exempt from restrictions, when the public needs to be saving as much water as possible, they receive a double benefit.

REGULATION OF WATER EFFICIENCY DEVICES

Like the water restrictions scheme, the Water Efficiency Program forms part of the water demand management program in the ACT. It is an approach whereby ACT residents buy devices to enhance water saving. In order to ensure the speedy uptake of such devices, the ACT Government subsidises the purchase of the required implements by residents. The Water Efficiency Program is part of the *Think Water Act Water' Strategy For Water Resource Management.* The Strategy sets the ACT the target of saving 12 per cent consumption by 2013, and making another 25 per cent saving by 2023 (ACT Government,

2004a, p.3). The strategy envisages making some of these savings inside the homes of many Canberra residents, which is where most of the consumption occurs. The major component of the Water Efficiency Scheme is provision of subsidies for homes for the following water saving items:

- AAA shower head rebate
- Indoor water tune-up
- Dual flush toilets
- Rainwater tanks (ACT Government, 2004b, p. 15-21)

The items mentioned above are devices that have been graded according to their water efficiency. They are of a standard that uses less water than most devices currently in use. Government assists in procuring these for residents so they may meet the targets in Think Water Act Water.

ACTORS

Actors involved in this scheme include ACTEW, which was initially contracted to carry out the scheme. Latterly ActewAGL has been given that task. Both the Chief Minister's Department and the Treasury are stakeholders. The CMD, being in charge of demand management in the ACT, is the department that promulgated the scheme while the Treasury is the financial sponsor.

The scheme is implemented through use of vouchers given by the Treasury to members of the public to purchase water-efficient devices. Vouchers as regulatory instruments act as an incentive to encourage water demand management within the household as it is in the household where most misuse occurs. Table 12 below shows urban water use in the ACT. Detached homes are where most consumption occurs. With the observation that much waste also occurs in homes, targeting homes makes sense because if unnecessary waste is minimised, there could be a better chance of meeting the targets set in 'Think Water Act Water'.

Table 12: Urban Water Use in the ACT

Water Use	Per cent of total
Un-metered	10
Units	6
Government	11
Commerce	19
Detached homes	54
Total	100

Source: (ACT Government, 2004a, p. 22)

Table 13 demonstrates how water usage inside houses compares with other uses in the ACT. It is also apparent from the table that, within detached homes, different types of use have varying rates of consumption. As a result, they need to be targeted differently.

Table 13: Average Water Consumption in Detached Homes

Use	Volume Kilo litres per year	Per cent of total
Toilets	60	18 per cent
Bathroom	66	20 per cent
Laundry	43	13 per cent
Kitchen	20	6 per cent
Garden	128	39 per cent
Other outdoor	13	4 per cent
Average annual use	330	

Source: (ACT Government, 2004a, p. 22)

Bathrooms, gardens and toilets consume about 80 per cent of water in the house; hence the need to target mainly those types of uses. The outdoor water tune-ups target the use of plumbing techniques to force low flow of water. Plumbers are paid by government to assist householders to tune-up their gardens and indoor plumbing infrastructure so that it does not let out too much water while watering (ACT Government, 2004b, p. 18).

Government uses vouchers to assist ACT residents purchase AAA showerheads, water tune-ups, rainwater tanks and dual flush toilets. While vouchers can have many uses, in this instance they are used as a regulatory tool. They are used to reduce water demand by financially assisting recipients to procure those items for which demand management

becomes easier. Financial assistance encourages better compliance while contributing towards the overall water saving objectives. Instead of trying to use such approaches as pricing, which still means the water is wasted; technology assists compliance without necessarily coercing the user. Complying inside the household where most wastage occurs helps to curb misuse by controlling some of the common habits of water wastage. As an example:

> Classical things that people like my mother do, I do not do that myself, I grew up on the farm. The classic thing is when you peel vegetables, and you peel them under running water. So you actually wash off the vitamins as well ... Stop! For people who do things like that, if you put the valve it slows down the rate. Slows down the flow, it's actually cheaper (Interview with Vicki Dunne, MLA, Canberra, 5 December 2005).

The Canberra-based Master Plumbers Association (MPA), a peak body of plumbers, was contracted by ACTEW in 2003-04 to spearhead the pilot program in Canberra. The MPA had just completed a similar exercise in Queanbeyan, NSW. Queanbeyan faced a peculiar problem that desired urgent attention. The city's sewerage treatment works were in danger of overflowing owing to excessive water going through it. New investment was urgently required to alleviate the problem. Instead, the city chose to use vouchers as an incentive for its residents to install water-efficient devices. The MPA:

> Got a contract to manage a water saving scheme to try and reduce sufficient water going into their sewerage plant so that they did not have to build a new one, spending millions of dollars. In three years, we have actually reduced the amount of water going into their sewerage treatment plant, just water going down kitchen, toilet, bathroom, and laundry by 1million litres per-week (Interview with David Williams, 8 December 2005, Canberra).

MANAGEMENT CHALLENGES AND THEIR RESPONSES

A saving of 25 per cent of water consumption by 2025 is the objective the ACT Government has with this programme. The scheme demonstrates several approaches to regulation in the ACT. It demonstrates willingness by the Government to sponsor residents both to retrofit water-efficient devices and new homeowners to buy the same products. The Government does this to encourage the uptake of such instruments to overcome possible

resistance. The scheme also demonstrates how actors involved in the programme readily exploit the capacities of each other to implement policies by exchanging resources. Challenges facing this program are many and include contract management, voluntarism and bureaucratic delays.

THE CHALLENGES OF CONTRACT MANAGEMENT

Contract management came as a challenge in that while the Office of Sustainability in the Chief Minister's Department mandates the program, most of the implementation occurs elsewhere. Implementation of programmes based on vouchers entails a series of contractual relationships, the enforcement of which is left to contracted parties. As one officer in the CMD explained:

> Initially we contracted it to ACTEW to do it and recently we have contracted it to ActewAGL. Say that I want a tune-up program, I would find the information in the papers, I would ring up, the contact number is done by ACTEW, and ACTEW would contact a plumber or a horticulturalist to come out. Instead of us being involved in the actual delivery of the incentive program we contract ACTEW, or now ActewAGL, to do it (Interview with Stuart Chapman and Karen Aguilera, 2 November 2005, Canberra).

Plumbers, who do not have much contact with the CMD, implement this program. However, it is the plumbers that have the most contact with the clientele. In the words of David Williams of the Master Plumbers Association, keeping his associated plumbers accountable for quality performance brought the advantage of keeping customers happy and enhancing their chances of obtaining more business opportunities.

BUREAUCRATIC DELAYS

Running the rebate scheme was partially problematic for the several layers of bureaucracy it entailed. The scheme entailed residents calling plumbers to do the necessary checks in their house, and then going to buy the showerhead. Once the showerhead was obtained, the plumber had to install it and then sign up to show that they had done so. Then the resident could claim money from government, a process that was obviously long. Sensing the

problem, the ACT Government has since negated two layers of bureaucracy to enhance implementation of the scheme. According to Peter Ottesson of the Office of Sustainability:

> From 17 October 2005, ACT residents will be able to obtain a rebate of up to $20 on the purchase of a water-efficient (AAA rated) showerhead purchased from any Magnet Mart Home Warehouse in the ACT (Ottesson, 2005)[31].

The hope is that this improves the take up of the program:

> By making it easier for Canberrans to obtain the rebate at the time they purchase the showerhead (instead of claiming it afterwards, as in the previous scheme) we aim to issue around 10 000 rebates under this new program (Ottesson, 2005).

FUNDING

Some doubt the efficacy of the Canberra version of the water efficiency programme. It appears as though there have not been enough people coming forward to take advantage of the rebates offered by the ACT Government. The reason is that the program was not allocated enough money. According to the ACT shadow minister for finance, Queanbeyan City Council's success was due to full financing of the program:

> Here in the ACT, the Government won't do that. The Government has a pilot audit program, through *Think Water, ACT Water*, they have a water audit, but it is only a small number of households, they come along and say, we think you should do this thing, but there is not enough money to go with that. People who are committed to saving water will do it, but others might not (Interview with Vicki Dunne, 5 December 2005 Canberra).

VOLUNTARISM AS A CHALLENGE

Another major challenge for implementing this program is that it relies on voluntary action. From individual householders to hardware stores, complying with the program is entirely the responsibility of concerned actors to take up the program. Some hardware stores still stock older showerheads. Whereas the Chief Minister's Department's perspective is that hardware stores ought to participate in this program because of self-interest, the fact that the program is still voluntary partly militates against their participating fully:

[31] This is a one-page press release.

> I went into one recently, just out of interest ... you can still buy big, elaborate showerheads that use vast amounts of water, the old ones, and the blokes would tell you that this is a AAA showerhead. But you can still buy the old ones (Interview with Vicki Dunne, 5 December 2005 Canberra).

There is a problem if people can still purchase water inefficient water devices. Asked if they were banning older water devices, a senior manager in the ACT Government stated:

> No, we are not banning them; not doing anything like that. It is a matter of encouraging people, saying if you buy this showerhead, the Government will give you money towards it. A lot of it is especially for people who have lot of money, they will still buy this elaborate showerhead that look fantastic and ... why aren't we banning them? It is one of the tools we could look at but not now (Interview with Stuart Chapman, 2 November 2005, Canberra).

Compliance is further complicated because the new showers release water in amounts that make showering unsatisfactory to some people. In their pilot programme, ActewAGL report widespread dissatisfaction with the new showerheads which led to instances where some residents 'removed the new showerheads and replaced them with their previous showerhead' (ActewAGL, 2004c, p. 7).

Bigger water consumers, on the other hand, seem not to have heeded the message:

> I stayed in a hotel last night and because I have a low flowing showerhead at home and cannot get used to the idea of water gushing so much out of showers, probably thirty litres per minute and a huge toilet cistern that you could probably swim in it...in the hotel (Interview with David Williams, 8 December 2005, Canberra).

Possibly the reason big water users have not fully enrolled in the program is they can afford to pay their water bill. The way to gain compliance is through educating and persuading them to enrol:

> The hard part about the whole program, for large corporations, is that they do not see the huge costs [or] the benefit they will not see from saving water. [Else] they could see that in 5,10,15 years, they would not see an instant saving in $15 000. We have to sell the idea that over a period of time that they will actually make a gain, but the water bill for a lot of big companies is not an immediate concern (Interview with Stuart Chapman and Karen Aguilera, 2 November 2005 Canberra).

CONCLUSIONS

Public information is used in the ACT to mobilise consensus behind regulation. Actors consult the public and each other to ensure that there is support for policy initiatives. Public documents that lead to major policies are generated partly on the basis of extensive public consultations. Where information might lead to unfavourable perceptions of regulators and ACTEW, there is a culture of keeping such information closely guarded until solutions can be found.

Self-regulation is widely used in social regulation. Drinking water quality and environmental flow guidelines both allow ACTEW to regulate its own policy implementation. At the core of the preference for self-regulation is the realisation that ACTEW has resource advantages that would allow it to ably implement the various programmes. It is therefore logical that regulators exchange some of their discretion or formal-legal authority for ACTEW's self-regulatory power. As ACTEW is allowed the space to exercise discretionary authority that formally belongs to the regulators, so the regulators who are government departments able to attain their mandates.

ACTEW is engaged by the ACT Government to implement water restrictions. ACTEW deliberately follows an approach that allows it to educate non-compliers instead of prosecuting them. ACT Health involved ACTEW in setting water quality standards but allows it to regulate implementation of the program.

Actors maintain dialogue through the use of 'coordinating' structures like the CEWG, which allow them to solve potentially contentious matters before they become big problems. The members of both the CEWG and SEWCG are selected from organisations with core functions in water management in the ACT. The two groups can thus be labelled as the 'dominant coalition' in the network in charge of social regulation. The coordination structures allow these members opportunities to set policy priorities and define the problems and resources required to solve those problems. The continuous dialogue also

allows actors to revise policies such as in the case of revising down the standards of environmental flow guidelines.

The interdependence of the various actors explains the calmness of the policy environment. ACTEW's release of environmental water, for instance, assists the ACT Government to meet its obligations to the Murray-Darling Basin Commission. The use of ACTEW's facilities like the Lower Molonglo Water Quality Control Centre augments these flows, aiding the ACT's compliance with intergovernmental requirements. ACT Health, which has no laboratory to test ACTEW's water quality claims, can only depend on ACTEW to provide clean water to ensure good public health outcomes. When ACTEW meets its drinking water quality objectives, so does the Government.

Network strategies for managing regulatory policy change

In this chapter on social regulation, what emerges is that the ACT's water policy community has enabled regulatory policy change by largely leaving intact the set of actors who have always managed water policy in the Territory. The use of self-regulation by the ACT water policy community also enables it to maintain cohesiveness and shared understanding in the policy community through exchanging resources. Through the CEWG and the SEWCG, constant meetings and information exchanges lead to policy actors all having their aims carried out. The policy community has therefore managed to mediate stable policy change by largely keeping policy actors from the period prior to the COAG water reforms in their former roles in spite of the changes in the names of the various organisations. In such roles, actors in the policy community are able to constantly revise policy requirements to assist ACTEW to comply. Furthermore actors have been able to develop informal means of communicating between themselves. As a result, while the names of organisational actors as well as their roles have changed, the working cultures have remained largely intact.

In the next chapter, this thesis will assess the role of the ACT's policy community in mediating intergovernmental policies.

8 FEDERALISM AND WATER REGULATION IN THE ACT

This chapter examines how the ACT water policy community protects the interests of the Territory in the context of federally inspired policy. The effects of federalism on domestic policy are generally disruptive. In the past decade, the role of federal policy requirements in ACT water policy has grown tremendously. The Murray-Darling Basin Commission, the COAG Water Reform Framework, the National Water Initiative and bilateral water matters with New South Wales have all gained prominence in the running of water policy in the ACT.

This chapter first assesses the impact of past intergovernmental interventions in the ACT. It then analyses the process of setting a consumption cap on water diversions by the ACT by the Murray-Darling Basin Commission. This is followed by an assessment of the way the ACT responds to the challenges of managing bilateral water policy concerns with New South Wales, including water quality in Lake Burley Griffin and the Googong Dam. Thereafter the chapter proceeds to assess the management of the Water Efficiency Labelling Scheme. What emerges in this chapter is that ACTEW, the various government departments and regulatory agencies systematically exchange resources as a means of attaining policy aims with the objective of implementing the ACT's federally imposed responsibilities.

The ACT's water regulatory structure is radically different from that which existed prior to 1994. The 1994 structure is a result of the COAG Water Reform Framework (CWRF). The National Water Initiative (NWI) succeeded the CWRF in 2004 and brought further changes. It is for this reason that regulation of water in the ACT cannot be fully analysed without looking at intergovernmental relations. Australia's states and territories are distinctive jurisdictions whose rights to manage their water sectors are espoused by section 100 of the Constitution.

Before the CWRF, the Commonwealth's relationship with states in water policy was highly restricted. When it was announced in 2004, the NWI could have been thought of as ending the relegation of the Commonwealth to financing projects without exerting any continuing influence. The NWI, Australia's blueprint for water management, helps facilitate cooperation in water policy. In the ACT, past intergovernmental reforms have led to fundamental changes to the structure and philosophy of the ACT's water policy. Such impact of federal policy on jurisdictional policy is not unique to Australia.

Similar changes have resulted from the European Union-led changes to water sectors in Europe. Accounts of European Union policy on the United Kingdom are given by Richardson (1994) who observes that federalism destabilises established patterns of policy-making. Recent studies about the United Kingdom also suggest several key changes, including participation, river basin management approaches, full cost pricing and environmental awareness as other changes caused by Europeanisation (Paige and Kaika, 2003, p. 330-334).

The major conclusion reached is that as the realisation grows that water needs to be managed as a system, the influence of federalism will continue to grow. However, the Commonwealth, unlike the European Union or other federal powers such as the United States Environmental Protection Agency, does not have the powers to impose standards on other Australian jurisdictions. As a result, unlike gas and electricity, where direct Commonwealth regulation is already entrenched, the Commonwealth will mainly act as an agenda-setter. The ICRC senior commissioner expressed the matter thus:

> We [the ICRC] do licensing of the retailers and distributors. All these activities with regard to gas and electricity are going to be passed over to an Australian gas and electricity regulator at the end of 2006, *but we retain the water* [emphasis added] (Interview with Paul Baxter, 25 November 2005, Canberra).

The above citation is especially instructive. For example, the Commonwealth promulgates Australian Drinking Water Guidelines. The latest version dates from 2004, following the first one in 1996. Yet in Australia, states and territories are only 'guided' by the Commonwealth, and not necessarily expected to adopt the guidelines in their entirety:

> The guidelines are a reference for use within Australian administrative and legislative framework ... The guidelines should not, however, be construed as legally enforceable (NHMRC and ARMACANZ, 1996, p. 2).

Individual governments in Australia as a result choose to adhere to different standards that purport to be based on the ADWGs. The contrast with the United States, for instance, is sharp; with comparable guidelines enforced by is the Environmental Protection Agency. In Australia, it is left to jurisdictional regulators to enforce their own rules on utilities, with varying effects (Smith, 2003).

Furthermore, in the ACT, rural water policy reforms matter less than urban water reform. The NWI has a strong bias towards water trading. The ACT implemented most of its urban water policy changes during the era of the COAG Water Reform Framework. Whatever changes need to be done are going to be influenced by the ACT Government more than the Commonwealth, because over and above the lack of water trading in the ACT, the Territory has the final say in implementation of the guidelines.

Because it is enclosed entirely within the physical borders of New South Wales, the ACT's inter-jurisdictional water regulatory challenges can be mostly dealt with through bilateral cooperation with New South Wales.

EFFECTS OF PAST COMMONWEALTH REFORMS IN THE ACT

The precursor to the NWI, the COAG Water reforms, led to numerous institutional changes in the ACT's water sector. The reforms required building regulatory institutions whose responsibility was to set prices for the newly corporatised corporations. As a result, a new customer service regulator (the regulator) was created and it now operates independently of government.

The COAG Water Reform Framework also initiated a new form of thinking in the water sector. Such changes included pricing water to reflect the costs of collection, treatment and transportation, encouraging participation by stakeholders, creating a higher awareness of

the connection between water use and environmental degradation, and promoting demand management as an integral aspect of policy.

INSTITUTIONAL CHANGES

One of the requirements of the COAG Water Reform Framework (CWRF) is separation of ownership, management, and regulation. As outlined earlier in chapter five, ACTEW ceased to set its own prices and was, instead, subject to regulation by ICRC. Existing water management institutions took on a more prominent regulatory role. Environment ACT, the current regulator for environmental water quality, now has a more prominent regulatory role, having taken over responsibilities previously handled by ACTEW's predecessors inside government (Thompson, 2001, Donovan, 1999).

CHANGES IN THE PHILOSOPHY OF WATER POLICY SECTOR

Besides changing the institutional structures of water management in the ACT, the COAG Water Reform process sought to alter the rationale, motivations and attitudes of users, providers, policy-makers and regulators. The total outlook of the water sector changed, enforcing the same changes on consumers and governments alike. These changes include greater environmental awareness and economic efficiency. Broader participation in policy-making, legislating for environmental flows; full cost recovery for water services and demand management are other consequences of less than a decade of implementation of federally-encouraged water reforms. The changes represent a fundamental departure from previous approaches to water management. For example, water pricing was not based on the volumes used and little or no effort was made to control the quantity of water used by consumers.

Change, it must be stressed, is not restricted to economic regulation. There was a similar expansion in social regulation, the most important of which is the integrated catchment management approach. The COAG Water Reform Framework made it clear that integrated water catchment management was to be considered in all aspects of water management. COAG encouraged participation through the catchment management approach. According to COAG:

> An integrated catchment management approach to water resource management including consultation with local government and the wider community in individual catchments (COAG cited in (NCC, 2001, p.85).

The ACT's water catchment groups consist of a wide array of participants including, among others, the Australian National University and University of Canberra, residents, ACTEW and ACT Government departments. Catchment management groups afford jurisdictions the chance to bring together parties with interest in the ecology and how it affects water management. The ACT participates in the Murrumbidgee catchment alongside non-ACT regulators such as the New South Wales Environmental Protection Agency. It also participates in the Murray-Darling Basin Commission (ACT Government, 2004c).

The ACT is Australia's leader in the release of environmental flows. Similarly, the water abstraction charge (WAC) is meant for purposes of environmental remediation and abstraction costs (ICRC, 2003a, p.1). While ACTEW's water bills are means through which the ACT Government collects such revenues, all the money accrued due to the WAC are due to the ACT Government. While judiciousness with which the proceeds of the WAC are used is in question, such a charge is generally well supported by users in the ACT (JHD, 2004; White, 2006).

RELEVANCE OF THE NATIONAL WATER INITIATIVE (NWI) TO THE ACT

Among actors in water management in the ACT, there is a prevailing opinion that a large aspect of the NWI is relevant mostly to jurisdictions with big farming interests. As a result, while not irrelevant to the ACT, the NWI has a lesser bearing in the Territory than elsewhere in Australia including New South Wales. That the ACT's water supply system is geared essentially towards supply to a metropolitan centre means that most of the necessary reforms have already been carried out during implementation of the COAG Water Reform Framework. According to a respondent, the problem of over-allocation and insufficient water resources experienced in other jurisdictions is not relevant to the ACT:

> In the ACT we have the reverse of that because we have 600 gigaliters of water for which we only use about 30, so that we have not got that same situation. As a consequence, the NWI is going to have less impact on the ACT than the rest of the system because we have a different set of circumstances. We have not over-allocated our water resources (Interview with Ken Horsham, 23 November 2005, Canberra).

This situation does not mean that the ACT will be totally unconcerned, however. As part of the Murray-Darling Basin, Canberra has to release some flows into the Murrumbidgee River, which enters the ACT in the south and exists in the north-west. Canberra's obligations in relation to the Murray-Darling Basin are clearly being more than met; ACTEW releases 60 per cent of their inflows surpassing targets set in the Environmental Flow Guidelines:

> Since we are part of that overall system, we have some obligations to the rest of the system and so that is why the Government is saying, 'we as the ACT will participate in the NWI in terms of demand management strategies, the urban stuff and all the reform strategies because we see that as a responsibility for us, being an environmentally responsible people to participate in that same system, even though we are probably doing better than what those other people are doing' (Interview with Ken Horsham, 23 November 2005, Canberra).

Any future impacts of the NWI in the ACT are also likely to be limited because of constitutional guarantees of state and territory pre-eminence in water regulation. While one of the conclusions reached in this chapter is that Commonwealth regulation has grown because of the NWI, some constitutional barriers still preclude the Commonwealth from having much impact on domestic policies.

OPPORTUNITIES FROM INTERGOVERNMENTAL RELATIONS

Inter-governmental relations impose an external agenda on domestic policies. In Canberra, like other jurisdictions in Australia, there are some advantages to be gained from federalism. Advantages include the water accounting system and the potential for funding of local projects by the National Water Commission.

THE WATER ACCOUNTING SYSTEM

One advantage of the NWI is implementation of a water accounting system by ACTEW. A water accounting system will aid in standardising data reporting formats, bringing national uniformity to water reporting formats. Standardised water accounting systems will be beneficial not only to ACTEW but to regulators and governments. Currently ACTEW has obligations to submit statistics and other data to authorities such as the Australian Bureau of Statistics, the ICRC and WSAA. What frustrates ACTEW is that each of these authorities requires different reporting formats, imposing an unnecessary reporting burden:

> It [the water accounting system] will help consolidate data access, data analysis, and so we are now looking at how we might change our system so it goes into that. That will be great, everyone will have access to our system, so we do not get a different number here, and a different number there, because if you interpret data in a different way, using different assumptions, you can end up with slightly different numbers without putting in all those qualifiers all the time, so people do not misinterpret them (Interview with Kirilly Dickson, 6 February 2006, Canberra).

Comparable data can only assist in aiding cross-comparisons among the different water service organisations, which ought to aid in improving service quality. The Water Services Association of Australia (WSAA), for instance, has admitted that different data report formats reduce the capacity of observers to compare convincingly the performance of the various utilities in Australia (WSAA, 2004, p.4).

THE NWI AND DRINKING WATER QUALITY

To the health regulator, implementing the NWI presents both opportunities and challenges. The regulator foresees possible problems with the new emphasis on water recycling as people may install their own backyard water recycling plants, which they may not manage well. The capacity under the NWI to finance large-scale water infrastructure projects will obviate the need for individual water treatment plants as it will aid water recycling and reuse. To the DHCC, however, financing such an important project will ultimately help manage the protection of public health:

> I think the consequence of that might be that we see an expansion of dealing with challenges emanating from a broader use of greywater systems. So if it does influence it, from the perspective of, say, limiting the use of individual water treatment plants, it will thus limit the possibilities I mentioned about individuals endangering public health due to inability to manage those private water treatment plants (Interview with John Woollard, 22 November 2005, Canberra).

The Territory's water management network used the 'coordination' structures to guide the implementation of greywater management. The ACT's water policy community acted through the Senior Executives Water Coordinating Group (SEWCG) and the Chief Executive Water Group (CEWG) to assist the Government to prepare proposals to access the funds provided by the NWI. A consultant hired by ACTEW described the process:

> For example, one of the proposals I have been working on is for the Australian Water Fund, where we have lodged applications for substantial water reuse. In that proposal, whilst I was actually doing work for ACTEW, ActewAGL was helping me. It is actually that body that has been working on it together, to submit it to the NWI (Interview with Ken Horsham, 23 November 2005, Canberra)

While the results of this attempt are not as yet available, the history of cooperation by ACT policy actors might enhance the possibility of positive outcomes for the ACT government.

CHALLENGES TO THE NWI AND THE FUTURE OF REGULATION IN THE ACT

Begun in 2004, the NWI is still too recent in institutional terms for its effects on regulatory policy in the ACT or elsewhere in Australia to be evaluated. Its potential effectiveness is subject to already existing relationships between the Commonwealth and the states, and whether the NWI's objectives represent best practice. Current judgment suggests a tendency to prefer form to substance by the predecessor to the NWI when assessing compliance with reform imperatives. Compliance seems to be defined as attainment of minimum standards with little adherence to best practice. Another potential challenge is the legitimacy of the program. An intergovernmental programme like the NWI faces issues of acceptance by the states and harmony with domestic policy agendas and democratic principles (Connell et al., forthcoming).

THE PREFERENCE FOR FORM OVER SUBSTANCE

Prospects of the NWI having lasting effects on regulation at state and territory level is compromised because objectives are loosely defined, and compliance often only judged on form, and not necessarily on the substance of reform. Such a tendency means that the use of financial incentives by the Commonwealth to foster institutional change is highly constrained. Examples exist where the National Competition Council has acclaimed the ACT's water reforms as satisfactory. For instance, the 2001 assessment of the ACT by the National Competition Council on behalf of COAG stated unequivocally that 'the Council is satisfied that the ACT has complied with 2001 full-cost recovery commitments for urban water and wastewater' (NCC, 2001, p.26).

The National Competition Council (NCC), acting on behalf of COAG, missed a number of issues that contradict this assertion. These include the substantive meaning of their assumed compliance. For instance, ACTEW's attempts at full cost recovery prejudiced certain classes of consumers. With hindsight, it appears that ACTEW did more than full-cost recovery. Institutions point out that they are overcharged to cross-subsidise residential clients for wastewater charges (JHD 2004). The Queanbeyan City Council which is supplied bulk water by ACTEW appears to be charged a fee that does not take cognisance of their use of their own infrastructure to transport and treat the water (Pangiallo, 2004). It appears that in making proposals for states to ensure full cost recovery, COAG did not specify the parameters allowed for such undertakings.

Further evidence that form tends to be preferred over substance is that separation of providers from regulators and managers of water in the ACT was acclaimed by COAG (NCC, 2001, p. 34). While one could point out to corporatisation of ACTEW, and its loss of a regulatory role as evidence of separation, this change only partially tells the story; on a day-to-day basis, substantial regulatory power still remains with ACTEW. ACTEW is still, in effect, a self-regulatory entity. Through its part ownership of Ecowise Environmental, ACTEW is able to control production and publication of information on water quality management tightly. Furthermore, ACTEW, as shown in chapter six regulates itself on wastewater pricing and bulk water sales.

It is a similar situation with participation in regulatory matters. Some 'participants' feel that the economic price setting processes are too technical, precluding effective participation by many. While 'participation' has ostensibly opened doors for concerned parties while the technicalities of policy preclude effective participation. Because COAG has not given indicators about what 'effective participation' is means, there will be dissatisfaction from those who feel excluded despite policy that purports to include them.

FEDERALISM AND DEMOCRATIC LEGITIMACY

Another potential challenge to the future effectiveness of the NWI relates to the power struggles between the Commonwealth and other jurisdictions, and the implications of the NWI for democratic principles. The structure of the National Water Council gives power to the Commonwealth over state ministers, potentially making for a contentious relationship in implementation of the NWI.

When the NWI began in 2004, it was preceded by murmurings of discontent from some jurisdictions about the Commonwealth's insistence on using money left over from another program and insistence on appending the industrial relations law to compliance requirements. In protest, Western Australia and Tasmania remained outside for an extended period of time; Tasmania eventually joined in May 2005. Implicit in the different joining dates of the two jurisdictions is their right and power to determine whether they want to stay in the NWI or leave it. Such power will always make for fractious relationships between the Commonwealth and the other jurisdictions. The capacity of states and territories to stay in or leave the NWI are paramount in terms of the extent to which the Commonwealth can exert influence on water policy. It is highly likely that this could also lead to compromises and thereby reduce the impact of the reforms.

The Commonwealth also controls the business of the NWC and thereby the water sectors of the various jurisdictions indirectly through the appointment of the CEO of the NWC (NWI paragraph 25). Current chief executive officer Ken Matthews is a former secretary of the Department of Transport and Regional Services (and before that of Primary Industries) in

the Howard government. The Commonwealth also has a somewhat disproportionate control of the NWC through its power to nominate the chairman of the NWA (paragraph 8.2). Furthermore, of the seven commissioners, the Commonwealth appoints four while the other eight jurisdictions appoint the remaining three.

(Connell et al. forthcoming) make a helpful contrast of the collegial situation characterising the Murray-Darling Basin Commission, where all ministers are required to have consensus on a subject of discussion before they can adopt it. The MDBC commissioners can only make recommendations to the ministers of the member jurisdictions, thus ensuring that the ultimate decisions rest with the member governments. Ultimately the likelihood of member governments taking responsibility for the decisions made at MDBC level are enhanced, since the Governments even provide funding for the MDBC (Connell et.al, forthcoming; p. 19).

The argument is not that the NWI is illegitimate policy. It is rather that it compromises constitutional safeguards, overrides the states' roles in determining policy in water sectors, and could lead to resistance from other jurisdictions. Currently the tension between the Commonwealth and state governments is more prominent since the Labor Party governs in all the states and territories while in the Commonwealth, it is a coalition composed of the Liberals and the Nationals. Commonwealth entry into water policy could also be a fractious affair because of longstanding traditions in Commonwealth-state relations:

> In the history of Australian federalism there are many precedents for responsibilities moving from the states to the Commonwealth in this way. The standard pattern is to reduce the funding capacity of the states to do very much while retaining their constitutional right to remain active (Connell et.al. forthcoming, p19).

BILATERALISM AND REGULATION: THE ACT AND NEW SOUTH WALES

One of the reasons for the limited impact of the NWI in the ACT's water regulation is that negotiating with New South Wales can solve many of the ACT's water quality issues. The primacy of bilateralism for the ACT is implicit in the water quantity and quality issues stemming from the ACT's geographical location. The Murrumbidgee River catchment in

NSW includes the entire ACT (ACT Government, 2004, p. 3). To complicate matters further, the Googong Dam, though owned by the ACT, is in NSW.

Unlike the Cotter Catchment, the catchment from which the Googong Dam captures water is under the control of a different jurisdiction, the New South Wales Government, limiting the ACT Government's capacity to influence water quality. While water from both the Molonglo and Queanbeyan Rivers flow into Googong Dam, neither the Commonwealth Government nor the ACT Government has any planning control over the Googong Catchment.

THE WATER QUALITY CHALLENGES OF LAKE BURLEY GRIFFIN

Inter-jurisdictional regulatory politics in the ACT are complicated by the insistence of the Commonwealth in using the National Capital Authority (NCA) as its agent for taking care of all federal land, including the Parliamentary Triangle and Lake Burley Griffin. One may ask why this arrangement persists when the ACT Government has its own departments that could do the same job. The answer seems to lie both in history and in the Commonwealth's aim to influence the physical development of the nation's capital city:

> They have reserved certain powers and the have specific powers on specific areas, so they control, like Lake Burley Griffin and the Parliamentary Triangle. You can take the view that as local government we should have the final say, or you can take the other view that this is the national capital and there are two organisations with different responsibilities and should learn to live together (Interview with Peter Ottesson, 16 November 2006, Canberra).

Being in charge of Lake Burley Griffin, the NCA adds another administrative layer to water management. The NCA manages water quality in Lake Burley Griffin, but the water quality challenges begin in New South Wales. As narrated by one respondent:

> The Molonglo River flows somewhere down to the southeast of us here, through Captains Flat, collects lichen from the Captains Flat goldmine, then down the river there are bits where the lichen are deposited and you have heavy metal poisoning in the river, and it comes through here, now in the Queanbeyan River where the Googong Dam flows through and deposits in the Lake Burley Griffin. When the River flows into the Lake, it deposits a whole lot of sediment too, and that is my

> concern. My concern is that the lichen gets to the lake and settles on the eastern side of the Kings Avenue Bridge. I think if you looked down there you would find a lot of things not very nice, but I don't know if anyone ever does (Interview with Hon. Vicki Dunne, 5 December 2005, Canberra).

Another challenge posed by the presence of the NCA as a parallel jurisdictional authority in Canberra is it often waters the lawns around Parliament House when water restrictions are in force. The NCA obtains water from Lake Burley Griffin and its role in water management in the city often gives an appearance that government departments and agencies do not observe water restrictions.

The reason Parliament House requires constant watering is to keep the roof structure of the building intact (ACT Government, 2004b, p. 23). Evidently some residents in Canberra cannot make the distinction between the Commonwealth and territory government departments. Some views exist in the community that government has to take the lead in reducing watering if ordinary citizens are to comply fully. Seeing government places being watered when there are water restrictions:

> ... does cause some angst. I know one person who said they would stop watering their gardens when they stop watering on 'The Hill' as we call it (Interview with Rosemary Purdie, ACT Office of the Environment Commissioner, 15 December, 2005, Canberra).

While such views are not in the majority, they do cause concern. Quite fortunately, by late 2004, the NCA, after extensive consultations with ACTEW and the Chief Minister's Department, agreed to water their lawns using drips rather than sprinklers. The drips water the lawns deeper but less often, ensuring that less water is lost through evaporation. Negotiations between the ACT and the NCA have thus managed to contain a problem that looked set to cause public controversy for water management.

THE GOOGONG DAM AND ITS MANAGEMENT CHALLENGES

Another water quality and quantity challenge concerns the Googong Dam. When the dam was constructed, augmenting water quantity was the primary concern for the Commonwealth. Owing to land shortages in the ACT, the Commonwealth had to make a

choice between building the dam in a different jurisdiction and constructing the Tennent Dam, which would have been located in the ACT. Building the Googong Dam made good politics, at least at the time. Citing a member of the engineering team at the time, one observer explains:

> Reg Goldfinch says he was only a junior then, but it always occurred to him that the Tennent dam was a better dam site, better option, bigger dam, all of these things and he actually went to his boss and said, 'why are we going with Googong when Tennent is better', and his boss said 'we are going with Googong because the politics are right. Googong is in NSW; we can always build Tennent later because Tennent is entirely within the ACT. He said the politics might never be right again' (Interview with Vicki Dunne, 5 December 2005, Canberra).

Loss of control in the Googong Dam

The benefits of what appears to have been a sound decision appear less so in retrospect. The Googong Catchment is located alongside industrial and farming operations in New South Wales. These compromise the quality and quantity of the water in the dam. While Googong Dam is normally used as reserve water storage for the ACT, the aftermath of the fires in 2003 and the continuing drought necessitated using the low quality water from Googong; if the drought persists, there could be further problems for ACTEW:

> This will be a different priority for ACTEW in the next few years, as we take water from different sources to make sure we are going to provide safe drinking water. The Murrumbidgee River is in a very large catchment and there many activities in that catchment that could affect water quality, so it is a different sort of ball game for us. We are moving from a very controlled catchment, which is relatively well controlled, to a much larger basin, and we would not have much ability to control activities that influence water quality (Interview with Kirilly Dickson, 17 October 2005, Canberra).

Other problems emerge as water scarcity rises in Canberra, and growth in New South Wales moves towards the ACT borders. Issues of ownership of water become difficult. The Commonwealth and not the ACT Government signed agreements with New South Wales for the rights to the waters of the Molonglo and Queanbeyan rivers. Questions arise as to whom between the Commonwealth and the entity that is the ACT Government ought to assert the ACT's claims to these waters. One respondent defined the problem:

> The really interesting thing that we have in Canberra, you know, the *Seat of Government Acceptance Act*, I think one of the principal failures we have at the moment is that there is no adherence to that, no demands by the ACT Government for NSW to comply with the Act (Interview with Anonymous Respondent 3, Canberra).

There is lack of clarity about whom between the Commonwealth and the ACT Government ought to take the lead in asserting these rights and the fact that the ACT could not impose planning control over New South Wales. During the transfer of assets from the Commonwealth to the newly self-governing ACT Government, the instrument detailing transfer of the Googong Dam appears to have been defective, casting doubts on who, between the ACT, NSW and the Commonwealth Government really owns the dam (Donovan, 1999, p. 169). Further compounding the issue is the need of New South Wales Government for water for its own residents. There are developments in NSW that some suspect has led to underperformance of the Googong Dam. Lately the dam can muster only thirty per cent of its total capacity. Property developments and hobby farms are springing up in the Googong Catchment leading to less water accumulating in the dam. Yet the question continues to be whether the Commonwealth or the ACT Government ought to take the lead in talking to NSW about planning issues complicating catchment productivity of the Googong Dam:

> But there is a very real doubt as to whether the rights, as such, transferred to the ACT whether at self-government or at any other time. They are not explicitly referred to in Commonwealth legislation establishing the ACT as a body politic. At best, probably the rights so far as they have been passed at all, are exercised by the ACT only as an agent of the Commonwealth, which retains them (*The Canberra Times*, 7-12-2004, Commentary, ACT's rights to outside water).

POLICY COMMUNITIES RESPONSE: THE COTTER-GOOGONG BULK WATER TRANSFER PROJECT (CGWTP) AS TECHNICAL SOLUTION

The ACT's response to management of its less productive catchment has been to commission implementation of the Cotter-Googong Bulk Water Transfer Project (CGWTP). The project entails diversion of about 12 GL of excess water annually from the more productive Cotter River Catchment to the Googong Dam. The project, approved by

the ACTEW board of directors in 2004, was completed in 2006. Its implementation is meant to entail the following:

- A bypass around the Googong Water Treatment Plant;
- Re-commissioning of pumps five and six at Cotter Pump Station;
- Reversing the existing Hume and/or Deakin Pump Stations to increase the capacity of the bulk water supply network to pump water from Stromlo to Googong; and
- Increasing the capacity of the Mount Stromlo Water Treatment Plan (ACTEW, 2005b, p.20)

The CGBT transfers water from the Cotter Catchment during wetter years in the Cotter Catchment to the less productive Googong. Opposition to the CGWBT among environmental activists in the ACT regarded it as the lesser of two evils. The alternative was constructing a new dam, a possibility widely rejected. The CGWBT affords the ACT the opportunity to defer dam construction while fully utilising the Googong Dam even given the uncertainties about control of the catchment.

ESTABLISHING A CAP ON DIVERSIONS FOR THE ACT

In 1995 Murray-Darling Basin Commission (MDBC) introduced a cap on diversions of water from the basin. The definition of a cap on diversions according to the Murray-Darling Basin Commission is:

> The volume of water that would have been used with the infrastructure (pumps, dams, channels areas developed for irrigation, management rules etc) in 1993/4 and hydrological conditions to those experienced in the year in question (MDBC, 2005, p.6).

The cap mechanism has two objectives:

> 1. To maintain and, where appropriate, improve existing flow regimes in the waterways of the Murray-Darling Basin to protect and enhance the riverine environment; and

> 2. To achieve sustainable consumptive use by developing and managing Basin water resources to meet ecological, commercial and social needs (MDBC, 2005, p.6).

When the initial Cap was set, the ACT was not a member of the MDBC; nor was Queensland. The ACT joined in 1998 as an observer member and was expected to become a full member in 2006 or 2007. The ACT's late arrival in the MBDC has led to a situation where, a decade later, it is still attempting to set an agreeable cap on its diversions. While the ACT Government supports the idea of capping diversions in principle, it is opposed to what it perceives as unfair limits on its water diversions. The Independent Audit Group (IAG) reported in 2005 that 'the ACT Government, however, has stated that it rejects the concept of a Cap based on historical use' (MDBC 2005, p. 46). To some in the ACT Government, being made to work on the basis of the 1993-94 volumes is akin to punishing the ACT because of water mismanagement by other jurisdictions:

> The cap on diversions was put in place to stop the very poor management practices in NSW, Victoria and South Australia. NSW has particularly over-allocated the water. They had abused what they had. We have been prudent. The amount of water that we can use safely is about 220 GL a year. We only take out 65 GL. We are very conservative. We have not over-allocated our water. We protect the water and have maximised the flow of water to New South Wales for other users (Interview with Anonymous Informant 2 Canberra).

The ACT appears unwilling to compromise their stance on the need to revise the Cap in their favour. As they point out, besides the process of setting the ACT a Cap in its absence is unfair:

> Independent of us, before we became a member, they did a calculation on what they thought our Cap should be and they based that upon what they thought was the amount of water we were using then and they said our Cap should be a net of 38GL, and they said, that is where it will freeze-at 38 GL (Interview with Anonymous Informant 2, Canberra).

THE ACT'S RESPONSE: DEMAND MANAGEMENT AT HOME AND NEGOTIATION ABROAD

The ACT looks prepared to resolve its disagreements about the Cap partly through the auspices of the MDBC. The Territory is, however, fully aware that its capacity to reduce water consumption will reduce its need for bigger diversions.

Demand management

One response of the ACT to the requirements of the Cap on water diversions is to formulate its own water resources management strategy; *Think Water Act Water*. Volume three of that report deals with matters related to catchment and water allocation. *'Think Water Act Water'* is part of the *Water Resources Act*, which provides for the administration of both licensing and measurement of water extractions in the ACT. As the Independent Audit Group of the MDBC has noted, the ACT's demand management program is reaping positive dividends:

> Water use in the ACT was below average for 2003/2004 as a result of acceleration of demand management mechanisms and ongoing restrictions on urban water use which accounts for most of the ACT's water consumption (MDBC, 2005, p. 57).

The ACT Government has informed the IAG that it must receive 'appropriate recognition for water efficiencies achieved' as a result of the demand management strategy (MDBC, 2005).

Another part of the ACT's response has been to engage in direct negotiations with New South Wales on the question of water diversions. The Memorandum of Agreement between the two jurisdictions outlining some of the approaches to sharing water was said to be on target for completion by 2006-07 (Interview with Peter Liston, 16 November 2005, Canberra).

Lately the ACT has returned less water to the Murrumbidgee River as treated effluent, which the IAG attributes to the demand management strategies. Water tariffs, water restrictions and the use of water-efficient devices it seems are allowing the ACT to reduce extraction of water from the basin. A mix of negotiations and engineering solutions as well

as demand management assist in protecting the ACT's interests in the Murray-Darling Basin.

THE WELS AND THE CHALLENGE OF SUBSIDIARITY

One of the expected gains from the National Water Initiative is standardisation of some water-using equipment to make it nationally compatible. Already the Water Efficiency Labelling Standards (WELS), an NWI initiative, is in force in the ACT. As the ACT shadow minister environment for the environment Vicki Dunne clarified when the WELS bill was introduced in the ACT Legislative Assembly, she had no problem advising her colleagues to support it because:

> WELS is one of the many elements of the National Water Initiative that have been brought forward through the auspices of the Commonwealth government and the fine work that is being done there on addressing the wider and manifold issues of water policy in this country (Dunne, 2005, accessed at http://www.hansard.act.gov.au/hansard/2005/week03/845.htm, on 15/05/2006)

The WELS came to Canberra as a template bill that has since been introduced in other jurisdictions and was sponsored by the Commonwealth Government. Unlike the old Water Services Association of Australia (WSAA) scheme it was replacing, the WELS will ultimately have legal backing. It will make it illegal to sell items other than those approved by law as water-efficient. According to the Commonwealth Department of Environment and Heritage that coordinates the scheme nationally, discontinuation of the WSAA sponsored scheme arose because:

> The coverage of the existing program is limited. Because the scheme is voluntary, few suppliers have chosen to label, and those that have tend to label only their better performing products - for obvious reasons http://www.waterrating.gov.au/publications/strategic-study.html (accessed on 15/05/2006)

Subsidiarity and its complications

Water Efficiency Labelling Standards has its origin in Commonwealth law. However. The Commonwealth's lack of supervisory authority over the ACT has meant that in Canberra

implementation could be less than optimal because of the Territory's preference for regulating through consensus building. WELS attempts to encourage water saving behaviours through labelling water-efficient devices and encouraging citizens to buy them. The ACT's regulatory culture is one of minimal compulsion. The challenge from this is that the ACT has emphasised less oversight on the labelling, thus potentially frustrating the intent of WELS to some extent at least.

Lack of compulsion could compromise the uptake of water-efficient devices. Deb Foskey, Green MLA for Molonglo, told the Legislative Assembly of a revealing experience at a hardware store. Having gone into the store, she found washing machines labelled and did not know which one to purchase. Upon asking the storekeeper, a 'particularly helpful young man', what the labels were about, the response was:

> Oh just ignore those labels...they really don't mean anything. They are measured over a year and they vary from different circumstances to different circumstances (Foskey, D, 2005, Legislative Assembly for the ACT: 2005 The Hansard, 10 March, p. 846, Canberra).

While the Commonwealth had fully intended for the WELS to be backed by law, the ACT chose to make the scheme voluntary. A similar interpretation is to be found with regard to implementation of the water rebates scheme. While the Commonwealth encourages jurisdictions to subsidise citizens for the uptake of relevant implements, the Commonwealth has not backed that up financially. States and territories have had to fund the water efficiency schemes, with variable results. For example, the Queanbeyan City Council fully funded the uptake of water-efficient devices while in Canberra, for budgetary reasons, the scheme has been only partially implemented. The primacy of jurisdictions in their own water sectors will, as a result, not necessarily have benefits sought by Commonwealth laws. In the ACT, preference for consensus means that where the Territory is the main implementer of Commonwealth programmes, approaches chosen are deliberately designed to encourage consensus.

CONCLUSIONS

There has been a definite growth in the influence of intergovernmental relations in the ACT's water policy. On the one hand, nationally coordinated policies like the National Water Initiative seem to have blended seamlessly into the ACT's policy. A possible explanation for this is that the ACT Government made an effort to modernise its water sector and this coincided with the planned changes by the Commonwealth. Furthermore, the ACT conducted an intense consultation with its own residents before adopting any of the COAG reforms.

Several challenges have nevertheless still arisen from intergovernmental regulation. One is the attempt to find a suitable Cap on diversions for the ACT. The Territory did not agree with the Cap set by the MDBC before it joined. Instead, it has sought to negotiate a more judicious cap. The ACT's demand management approach assists in averting the need to rely more on diversions. The ACT's operation of the Lower Molonglo Water Quality Control Centre through ACTEW also augments the amount of water returned to the Murrumbidgee River, helping the ACT Government to comply with MDBC requirements.

Lack of clarity about ownership of the Googong Dam looks likely to persist. The ACT's other problem with the Googong Dam is lack of planning control of the catchment, leading to the dam being less productive in recent years. In response the ACT Government, ACTEW and ActewAGL have come up with the Cotter–Googong Water Transfer scheme to move water from the Cotter Catchment to the Googong to supplement its supplies, especially in times when the Cotter has more water.

Network approaches to managing policy change

In this chapter, the thesis has demonstrated how the ACT's water policy community sifts and mediates changes necessitated by intergovernmental regulation in the ACT's water policy. The cohesion and interdependencies within the ACT's policy community means that it can better manage intergovernmental policies. One of the solutions to the management of intergovernmental policies was that the ACT policy community, through the leadership of ACTEW had generated consensus in the Territory in 1994 through the

consultations that led to the document *ACT Future Water Supply Strategy: Our Water our Future* (ACTEW, 1994). The changes proposed in the strategy foreshadowed the COAG water reform framework and the National Water Initiative after it. In the case of problems associated with Googong Dam, the ACT turned what appeared like a jurisdictional problem into a technical, engineering solution by transferring water from the Cotter Catchment to the Googong Dam. In this way, the policy community played the problem to its strengths since it was able to utilise ACTEW's technical capacity to improve the dam's capacity. The Googong has now been turned into reserve storage for the ACT. On the other hand, the potentially intractable negotiations over the Cap on diversions through the Murray-Darling Basin Commission have been partly resolved through the ACT's use of its demand management initiatives to ensure that residents needed to use less water, and by extension need to divert less water from external sources. Another strategy used by the ACT water policy community has been to emphasise negotiations through the MDBC.

The sense of shared values, resources and expectations in the ACT water policy community thus assists the Territory to manage policy change.

CONCLUSION: EXPLAINING THE ACT 'ANOMALY'

This study has examined water regulation in the ACT, analysing regulatory practice in its various stages. It has also assessed the selection and deployment of policy instruments, coordination of water policy, and the interaction between ACT and intergovernmental regulatory policies. The essence of this project was to find out how policy communities in the ACT effected change in water policy and regulation. The study has thus centred on answering two questions, using a detailed empirical case and the perspective of policy networks to explore broader questions in regulation:

- Do policy communities aid regulatory policy change and, if so, how?

- How has the ACT Government used policy networks to facilitate the use of regulation to manage the ACT's water sector?

To answer these questions, I studied management of policy change in the ACT water sector, and how regulation is used to manage water policy. The study embraced economic regulation, social regulation and regulatory federalism. The *Utilities Act 2000* established the sphere of economic regulation in the ACT, while other legislation like the *Public Health Act 1997*, *Water Resources Act 1997* and derivative statutory instruments such as the Environmental Flow Guidelines, effected social regulation. Regulatory federalism occurs through a myriad of legal acts, initiatives and other institutions. The answer to the questions is that regulatory policy in the ACT is underlined by resource dependencies between various actors engaged in the water policy sector. Such dependencies lead to exchanges of resources between the organisations, which exchanges are aimed at attaining the policy aims of the actors since none of them have enough resources to carry out their aims on their own.

This final chapter both summarises the changes that occurred and current practices in management of water policy through regulation and connects the insights of the case study to the research questions.

POLICY COMMUNITIES AS EXPLANATORY CAUSE OF STABILITY

When the ACT Government changed the mode of provision of water from direct government provision to regulation, this led to structural changes in the water policy community. Such changes include the one that ACTEW, which had always been a self-regulating agency ceased to have regulatory powers. Furthermore, the policy network that had always relied on building more dams in order to meet the challenges of reduced water supply had to face up to increasing demands to manage water through pricing and other approaches besides dam construction.

That these changes had minimal impact on the functions of the ACT water sector was due to several reasons, including the one of political economy. When the Commonwealth used to run the ACT, it invested extensively in water infrastructure, bestowing on the Territory a water supply infrastructure that would be adequate through the years. Another more important reason is that the organisations in the ACT's longstanding policy community continued, after corporatisation to rely on intimate resource dependencies that deepened cooperation. The potentially disruptive effects of federalism and independent regulation were thus mitigated.

Regulatory political economy and stability

One explanation why the ACT's water regulatory policy is stable despite the reconfiguration of its water policy sector lies in the political economy of water in the ACT. Most water consumption in Australia is by irrigation. In contrast, the ACT does not have a significant agricultural sector or a significant industrial base. Less competition between agricultural and human consumption makes water easier to manage because the urban sector is both more homogenous as a customer population and more responsive to water pricing.

Another reason for relative stability in regulatory policy lies in the ACT's water quality. In comparison with most of Australia's and the world's challenges with water quality, the

ACT's catchment is in a pristine location. This facilitates good water quality management. The Cotter Catchment, located in Namadgi National Park, is a protected natural area, keeping out most animals and human faecal material, agricultural and other potential pollutants. Moreover, the ACT's three dams in the Cotter Catchment are located at a higher altitude than Canberra, allowing for water to be gravity fed into Canberra. Gravity feeding water eliminates the costs of pumping water.

POWER DEPENDENCE AND NETWORK COHESION

Another factor accounting for the conduct of regulatory policy in the ACT is power dependence. Because actors in the regulatory space need others to realise their policy goals, such mutual dependencies bind actors together. There are intricate webs of interdependence in water policy in the ACT. At the centre of these webs of interdependence is harnessing ACTEW's financial, organisational, political and managerial capacity to benefit the corporation, its owners, regulators and the residents of the ACT. The Treasury depends on ACTEW to raise revenue. Environment ACT depends on ACTEW to use its considerable resources to maintain the dams, release environmental flows, treat water and recharge the flows in the Murrumbidgee River. Responsibility to let the flows into the Murrumbidgee belongs to the ACT Government. ACTEW thus influences policy formulation and implementation. As one respondent attested:

> ACTEW has a lot of influence; it is set up to be a corporate entity with two shareholders, the Chief Minister and the Treasurer. ACTEW has always wanted to have a strong role in policy developments and what have you. It is not just a service deliverer of water, it believes it must have and it does have a significant role in contributing to policy (Interview with Anonymous Informant 2, Canberra).

Power dependence offers a particular insight into conduct of regulatory policy. Contrary to suggestions of formal-legal theory, for instance, these dependencies flow in all directions, not simply from non-regulators depending on regulators. Regulators also depend on ACTEW to realise their goals. Furthermore, power dependence better explains implementation of regulatory outcomes than interventionist theories of government. While such theories may suggest reasons why government ought to intervene by regulation in a chosen activity, they do not explain why certain outcomes occur.

EXCHANGING HUMAN RESOURCES AS CAUSE OF REGULATORY STABILITY

Despite reconstituting the water policy community in the ACT and emphasising different priorities, old practices have been maintained through retention of former colleagues in newly named institutions. Retention of staff at all levels and especially in leadership roles helped preserve working cultures in the policy community. Notwithstanding the ICRC's newness, its chief operations officer, Ian Primrose, is a former employee of the ACT Treasury. Similarly, ACTPLA, the safety and technical regulator, hired Werner Padarin, formerly of ACTEW. Some of his duties involve inspecting his former colleagues at ACTEW for some of the duties he used to carry out with them.

Retaining ACTEW as a wholly government-owned corporation meant in many instances that there is no clear separation between operator, manager of the resources and regulators. ACTEW was granted its wish to remain part and parcel of the policy-making structures in water policy. Further, the Senior Executive Water Coordinating Group and the Chief Executives Water Group deepen communication and cooperation in the water policy community. An informant stated:

> From a policy perspective you have apparent separation, but in effect it is not separate. ActewAGL sometimes also contract some of their work to Ecowise, an independent laboratory. Yet you have Michael Costello as chairman of Ecowise and he also sits on the ActewAGL board of directors (Interview with Gary Jones, 9 November 2006, Canberra).

Costello is not the only one in this position. Asoka Wijeratne, formerly with ACTEW, is now general manager of ActewAGL's Water Department. Wijeratne is a director of Ecowise as well. Ross Knee, formerly managing director of Ecowise, is manager of ACTEW's water policy division. James Service, chair of the ACTEW board of directors, is also a member of the ActewAGL board of directors.

'COORDINATION' COMMITTEES AND DISCRETION

If continuity of personnel and working cultures from past eras and power dependence breed policy stability, coordination, as it is carried out in the ACT water sector deepens that stability. Coordinating structures ensure continued interaction between actors and ensure that contentious matters can be dealt with privately and consensus thereby fostered. Crucially however, structures termed as 'coordinating structures' such as the Senior Executives Water Coordinating Group and the chief executives counterpart all bring together from time to time actors who are immediately affected by changes in policy to discuss strategies of responding, including how to mobilise resources. Such committees therefore allow the dominant coalition in the policy sector to formally and informally liaise on policy, define problems and refine strategies of addressing those problems.

Such 'coordination' of policy in the network is carried out through regular meetings of the Senior Executives Water Coordinating Group and the Chief Executives Water Group. The SEWCG meets every three weeks and the CEWG every six weeks. The SEWCG consists of middle and top managers of ACTEW, ACTPLA, DHCC, Environment ACT, ActewAGL, Ecowise and top managers in government departments such as the Chief Minister's Department and the Treasury with direct responsibility for water management. The CEWG as its name suggests consists of the chief executives of each of the organisations.

These committees discuss issues within the safe environment of a policy community. These close working relations do not mean that such discussions are necessarily used to suppress the concerns of others. Instead it means that actors can robustly discuss matters behind closed doors. One actor in relation to the DHCC's demands articulated this:

> And there are some pretty fierce discussions we have, too, like this morning. I like to stir the pot. I challenged Health[32], as Health has a tendency to pose very tough standards on water that are constantly going up and up and up. At some points you have to ask yourself, should a risk analysis be done? Health is always extremely conservative. You ask them, is there a very low risk? And they will not tell, they

[32] Means the Department of Health and Community Service (DHCC), the regulator for drinking water quality.

> would just say, 'there is a risk'. [But] is it a high risk? No, it is not a high risk; it is a low risk (Interview with Anonymous Informant 2 Canberra).

What is notable about these 'coordinating' structures is that it is the dominant actors within any given sphere of water regulation that meets and makes decisions that define what constitutes a 'problem' for water policy regulation. Furthermore, these structures also decide what resources are necessary to deploy in order to solve the problem as defined. All these activities are carried out in relative comfort of the structures where resource dependent actors may freely exchange ideas on how to implement policy.

THE PRACTICE OF WATER REGULATION IN THE ACT

What emerges clearly is that in the ACT water sector actors prefer to encourage self-regulation for purposes of social regulation, which allows ACTEW to conduct business with minimal supervision. Economic regulation by contrast involves more supervision by regulators. Yet, because many issues are unregulated, ACTEW has some latitude in meeting its profit objectives. In regulatory federalism, the ACT's water policy community is able to absorb shocks due to federal policy either by turning seemingly intractable policy problems into technical ones, ignoring matters they do not like, or changing those that have been adopted from the Commonwealth to enable consensus in their application.

SOCIAL REGULATION

Social regulation in the ACT consists of water restrictions, environmental flow guidelines, drinking water quality regulation and promotion of water-efficient devices.

Water restrictions scheme

The water restrictions scheme demonstrates the depth of interdependence among actors in the social regulatory space in the ACT. The scheme also demonstrates the use of information and education to build consensus with the wider ACT community. ACTEW administers water restrictions. While ACTEW has a clear interest in selling more water, the Chief Minster's Department, which is supposed to enforce the restrictions, delegated that task to ACTEW. The reason given for this is that ACTEW had a continuing relationship

with clients, and thus would readily gain compliance. That reason is not wholly sufficient as ActewAGL has an even closer working relationship with the community. Irrespective of the real reasons, what emerges is that the CMD, knowing its lack of capabilities was willing to allow ACTEW to carry out this task, since ACTEW has organisational capacities better suited to carry out this task.

Furthermore implementation of the water restrictions scheme demonstrates consensus building in the way that ACTEW enforces the restrictions. Water restrictions coerce clients since they prescribe the amount of water to be used, the days to use it and impose penalties for non-compliance. In an approach reminiscent of Ayres' and Braithwaite's (1992) 'responsive regulation' paradigm, ACTEW engages in the use of information to persuade residents to observe the restrictions. Rarely are fines used to curb wayward behaviour. Wayward customers are educated on the importance of using water conservatively. While reports have been lodged about repeated violations, no one has had their supply terminated. ACTEW and the ACT Government have thus been spared the inconvenience of public outcries associated with discontinuation of water supply.

Regulation of water-efficient devices

The use of water-efficient devices to regulate water consumption in the ACT is consistent with managing policy through interdependencies. Such interdependencies are especially prominent in the awarding of the contract for installing the water efficient devices and supervising such work. However, the regulation of water efficient devices also demonstrates the implementation of policy through consensus; while uptake is voluntary the ACT Government subsidises water-efficient devices to encourage the purchase of the devices. The chances of confrontation with non-complying residents are minimised. Yet because of the existence of subsidies, there is greater chance that new owners will voluntarily purchase water-efficient devices. By subsidising the same devices for the purpose of retrofitting in existing properties, owners of older properties would also be enticed to purchase the relevant devices. By constantly advertising the virtues of using these devices, the Government further mobilises consensus without having to resort to legal sanctions.

Interdependencies are demonstrated through government's choice to subcontract the implementation of this project to ActewAGL. Selection of ActewAGL is justified by saying that the corporation has knowledge of the client base in the ACT and thus it is a more efficient arrangement. Such reasoning is sound; ActewAGL does have a better knowledge of the client base than the Chief Minister's Department, which however, finances the programme. Yet the knowledge that ActewAGL has an interest in the outcome of the programme means that the interdependent nature of policy processes in the ACT better explains this arrangement. ActewAGL gets financial benefit for carrying out CMD's duties while CMD fulfils its obligations because of ActewAGL's interventions. While demonstrating the depth of interdependencies and trust in the policy community in charge of ACT water policy, this arrangement also clearly runs contrary to the idea of separating regulators from managers of programmes.

Since actors in this network fully understand their resource capabilities and shortcomings, they know that ActewAGL with its many contract managers, plumbers and networks of technicians they have, they are able to carry out this duty better.

Environmental Flow Guidelines (EFGs)

Besides demonstrating the lack of clear separation between ACTEW and the regulator in implementing policy, the Environmental Flow Guidelines (EFGs) in the ACT demonstrate another important consequence of a closely-knit policy community. That consequence is the willingness of the regulator, Environment ACT, to accede to ACTEW's requests to revise down stipulated standards. Yet again, the interdependence of actors for resources to carry out policy is what drives approaches to regulation in this sphere. Whereas ACTEW is allowed the discretion and space to carry out duties that ought to be handled by the ACT government as part of its obligations in the Murray-Darling Basin, that discretion comes at added responsibilities to the corporation, which responsibilities ACTEW carries out at its own expenses.

EFGs are quintessentially self-regulatory programme in all but name. There is rarely any regulatory presence at the dams to witness the release of flows, which is left to Ecowise to perform. Yet since Ecowise is part owned by ACTEW and AGL, suspicions of lack of probity due to this arrangement exist among some regulators. While there are suspicions, the administration of the EFGs deepens a symbiotic relationship between the regulator and ACTEW. ACTEW's good use of the Lower Molonglo Water Quality Treatment Centre augments the flows by treating effluent to high standards and releasing it down the Murrumbidgee River. As a consequence, the ACT is the leading releaser of environmental flows in Australia. By releasing large quantities of water down the Murrumbidgee River, ACTEW meets obligations to downstream users in the Murray-Darling Basin on behalf of the ACT Government.

Drinking water quality regulation

Regulation of drinking water quality further demonstrates the preference for self-regulation in the ACT. Water quality standards were set in cooperation between regulators, ACTEW and government departments. However, ACTEW through Ecowise conducts the operational aspects of the activity. Notably, ACT Health, the regulator, has no laboratory for conducting independent tests on the water. The regulator mentions their trust in ACTEW's capacity as the main reason for letting it carry out the duties unsupervised. Besides the possibility that this is an extension of the trust that actors have in each other, not having its own laboratory could possibly be due to the fact that the regulator has considered it impractical to have parallel laboratories in a small jurisdiction such as the ACT. The regulator would rather exchange some of its formal-legal authority to supervise water quality regulation with ACTEW's expertise in the hope that ACTEW would carry out this task to the satisfaction of all concerned.

Official reports indicate that ACTEW performs this task well. The DHCC needs ACTEW to do that to ensure good public health outcomes. On closer examination the trust the DHCC has in ACTEW is dependent to some extent on certain minimal infrastructure requirements being met by the corporation. Such requirements minimise chances of cross-contamination of water. They include ACTEW ensuring that drinking water pipes enter homesteads in the front while used water exits at the back, chlorinating water in the pipes,

and maintaining water pressures to keep out potential contaminants. ACTEW, ActewAGL and Ecowise give further assurance to regulators by regularly subjecting themselves to global laboratory management grading such as the ISO system.

ECONOMIC REGULATION

Water pricing, service quality and network maintenance is managed within the economic regulatory space. The *Utility Act 2000* facilitates economic regulation in the ACT. Unlike social regulation, the Independent Competition and Regulatory Commission (ICRC) manages economic regulation. It does not have long historical links in the ACT. There is a strong political imperative to keep the regulator independent of ACTEW's and ministerial control. ACTEW has been ambivalent about ICRC's establishment and the fact that the founding commissioner was from outside of the ACT.

Water tariffs

Price setting for ACTEW is a relatively contentious process. The ICRC's valuation of ACTEW's asset base, its constant need for voluminous amounts of information and its duty to cross-check and pass judgment on ACTEW's claims for price increases are a source of frequent disagreement. Furthermore, ACTEW insists that its management-contracting fee to ActewAGL is a legitimate cost of service item that must be factored into its costs. The ICRC, on the contrary, contends that this fee is ACTEW's own privately determined arrangement and must not be borne by the consumers.

Disagreements reinforce the credibility of the ICRC as an independent arbiter in price setting. Another sign of the commitment to ensure the ICRC's independence is that in setting up several committees for coordinating water policy in the ACT, the ICRC has been excluded. Further, there has not been any public criticism of the ICRC by politicians or the media, and the chief commissioner has enjoyed a long tenure in the post. Yet, as the Treasury and Chief Minister's Department are shareholders of ACTEW, they need ACTEW to generate profits for government's revenue needs.

To understand the way that ACTEW, the Treasury and the Chief Minister's Department negate the effects of regulatory constraints on their revenue potential, one has to look beyond what is regulated. Aspects of economic regulation that are left unregulated point out to strategies that allow the dominant coalition in this sphere, ACTEW, ActewAGL and the Treasury the latitude to use economic regulation to their benefit. Such strategies include charging monopoly prices, cross-subsidising residential customers, not imposing automatic penalties on ACTEW and allowing it to operate infrastructure at arguably low standards.

Sewerage fees and bulk water charges

The sewerage fees charged to institutional clients like Parliament House appear unjustifiably high. ACTEW charges prices based on the number of fixtures in the building rather than the amount of effluent emitted from Parliament House or the chemical strength of the effluent. Parliament House ends up paying for the equivalent of 847 homes whereas it uses the equivalent of only 260 (JHD, 2004 , p.12). A similar issue occurs with the pricing of bulk water transfers. The City of Queanbeyan has a statutorily based arrangement to be supplied water by the ACT Government. The prices charged by ACTEW are, however, deemed as unjustifiable by the Queanbeyan City Council. Such views persist despite the fact that ACTEW charges the QCC prices similar to those charged to Canberra residents. The Council's misgivings centre around two aspects:

1. The city uses its own personnel to maintain the infrastructure network used for the delivery of the water.
2. The City of Queanbeyan rather than ACTEW owns the water and sewerage infrastructure, which means that the city, instead of ACTEW, bears the costs of investment, operation, and maintenance of the infrastructure in question.

The Queanbeyan City Council claims that its attempts to negotiate a better deal with ACTEW have been ignored. Whereas neither the ICRC nor its New South Wales counterpart IPART can regulate ACTEW in inter-jurisdictional matters, the ACT Treasury has never been on record as requesting ACTEW to revise down its charges. The Treasury

however is the sole beneficiary of ACTEW's profits since it is one of the two voting shareholders in ACTEW, besides the Chief Minister's Department.

The Water Abstraction Charge (WAC)

The management of the WAC demonstrates the use of water regulation to aid ACTEW's shareholders, the CMD and Treasury. The charge, while meant for catchment management, is collected by ACTEW through water tariffs on behalf of the ACT Treasury. The nature of interdependencies and exchange of resources in the administration of the WAC includes ACTEW acting as revenue collector for the Treasury and CMD while the two agencies, in theory at least, ought to assist ACTEW through spending the money accruing from the WAC on catchment management activities. However, in spite of the generally expressed support of the charge by ACT residents, the use of its proceeds raises questions. Detractors decry the lack of transparency surrounding use of the charge and raise serious doubts about whether the ACT Government might be using the charge for general revenue purposes instead of environmental and catchment maintenance (White, 2006, JHD, 2004).

Customer Services Oversight

Another component of economic regulation is management of the relationship between ACTEW and its customers. The Essential Service Consumer Council (ESCC) regulates this activity. The ESCC intervenes on four main grounds: systemic issues; hardship cases; non-hardship cases; and adjudicating customer disputes. Similar to other regulatory activities in the ACT, essential services regulation works mainly through persuasion in cultivating consensus. Managing hardship cases enables the ESCC to come to the aid of poor customers who cannot pay their water bills. Managing non-hardship cases and adjudicating customer disputes, on the other hand, enable the ESCC to act as a neutral arbiter between ACTEW and its clients. The ESCC's perceived sympathy for customers gives it favour with the general clientele while ACTEW has open communication lines with the ESCC. Indeed, some residents in the ACT have often taken matters to arbitration just to have an audience and not necessarily to have ACTEW penalised.

The management of 'systemic issues', those faults in the legal instruments managing the utilities services, has enabled the ESCC to unearth information, which it then passes on to

the ICRC, ACTEW, the Chief Minister's Department and the Treasury to act on. This arrangement enables actors in the policy community to detect faults with the legislation proactively, sometimes prior to legal action.

The ESCC's ability to impose punitive measures on ACTEW is limited to only $10 000. Aggrieved citizens who feel disadvantaged by ACTEW and consider $10 000 too small have to resort to the expensive, time-consuming legal process. Some among the regulators expressed the misgiving that this favours ACTEW since some laws exist to ensure that it can collect its debts without having to resort to the legal system. The next subsection assesses some of the other strategies for ensuring ACTEW attains its profit.

The ESCC's duties entail making judgments on ACTEW's fallibility and imposing the necessary remedies. Its role is to assist customers who feel mistreated by ACTEW to gain some restitution with a higher element of immediacy. There is therefore scope for conflict in the relationship between the ESCC and ACTEW. To enhance the profitability of ACTEW, the CMD and the Treasury have left water as a rateable commodity. Being a rateable commodity means that no matter how long it takes an errant tenant to pay, ACTEW will always recover its money. Where a tenant defaults on paying bills, ACTEW will still recover its money from the landlord, who might not even have used the water that accumulated the debt during the tenancy. Furthermore, the debt will be paid with interest as ACT laws decree that no property encumbered by debt can be sold.

Another strategy of ensuring ACTEW's profitability is by not applying penalties for ACTEW's non-compliance unless customers demand such money. This is contrary to Australian and worldwide practices where such penalties are automatically applied. When customers are ignorant of their rights, ACTEW escapes with unsatisfactory conduct. It is likely that customers end up forfeiting the money to ACTEW. The management of systemic issues, on the other hand, ensures that ACTEW, the ICRC, the ESCC and concerned government departments can collect adverse information and proactively rectify bad laws before they become big public problems.

Safety and Technical Regulation

Safety and technical regulation concerns proper maintenance of the water and wastewater infrastructure in the ACT. ACTPLA regulates this service. Like other aspects of the ACT's regulatory sphere, safety and technical regulation official reports demonstrate high achievement of their regulatory responsibilities by ACTEW. Yet because safety and technical regulation entail the regulator making judgments on ACTEW's network maintenance responsibilities, it has the potential for conflict with ACTEW. If very high network standards are imposed on ACTEW, ACTEW will make a loss unless it imposes higher prices on clients, something its shareholders do not favour.

ACTPLA currently contends that ACTEW operates on low standards. ACTEW designed these standards when it was a self-regulatory government water utility. The regulator has tried in vain in the past to raise some of these standards. The standards are unclear on what actual compliance or non-compliance is, making it difficult for the regulator to impose penalties on ACTEW.

INTERGOVERNMENTAL RELATIONS AND REGULATION IN THE ACT

The influence of intergovernmental relations in water policy has grown considerably in the last decade. There are three main federal influences in the Australian Capital Territory's water policy: the National Water Initiative (NWI); the Murray-Darling Basin Commission; and the need to maintain water quality and quantity for some of the water flowing in from New South Wales. Intergovernmental relations introduce complexity into ACT policy because content is determined by outside influences and might actually work to the detriment of the Territory. One of the programmes is the Environmental Flow Guidelines, which have already been discussed in detail under social regulation.

At the core of implementation strategies in this sphere of regulation is the interdependent nature of the federal government on the ACT government to realise some of the objectives agreed at COAG towards implementing national water policy priorities. On the other hand, the ACT government engages the various actors within the ACT water policy community

to attain the goals it has been set by other jurisdictions as part of COAG. Such interdependencies occur mostly as a matter of course; organisations involved are just doing what they normally do in the pursuance of their objectives. However due to the guidance and prodding of the ACT government, the actors involved end up assisting the government carry out its obligations to COAG.

Where the influence of inter-governmental relations is concerned, the ACT's water policy community insulates its policy from external influences by negotiation, introducing information and education to enhance consensus, ignoring policy initiatives it does not like, and turning some potentially intractable policy problems into technical matters which it then solves by means of engineering. The NWI and, before it, the COAG Water Reform Framework (CWRF) greatly influenced the transformations in governance of water. Firstly, in response to the COAG Water Reform Framework, the ACT stopped using government bureaucracies to manage water, resorting to use of regulation. The ACT Government conducted its own consultations that led to change in water policy sector. The consultation process of 1994 set a firm foundation for implementing some of the later requirements of the CWRF. ACTEW embarked as early as 1984 on the ACT Future Water Supply Strategy which would later inform water policy change (ACTEW, 1994).

Sometimes the ACT Government engages in negotiation. When the MDBC began, the ACT Government was not a member and the limits on its diversions were determined without its agreement, resulting in feelings that some of the provisions were not justified. The ACT Government is now involved in renegotiating the cap on diversions of water into the Territory. ACTEW and ActewAGL contribute to this process by seconding some of their technical staff such as hydrological scientists to assist the Chief Minister's Department with the technical aspects of the negotiations.

One of the approaches to solving problems in the ACT concerning intergovernmental regulation is to turn policy issues into technical problems. While the location of the Googong Dam in NSW compromises the ability of the ACT to manage water quality in the dam, what is more worrying is the dam's lack of productivity. New farming activities in the

catchment area mean less water accumulates in the dam. However, through the Cotter-Googong Bulk Water Project the Territory ensures that excess water is pumped into the Googong instead of being lost downstream. The dam, which might have turned into an under-performing dam, has now become storage for drier years.

POLICY COMMUNITY AND STABILITY OF REGULATORY POLICY

In transforming the water policy networks from the early 1980s to the late 1990s, the ACT Government (unlike other governments) did not break up the core set of actors who had been in charge of the water policy network. While the scope of the activities of the core network changed from mainly engineering concerns to financial, economic and environmental prudence, these changes occurred with minimal discarding of actors who were already there. Water policy was seamlessly transformed from bureaucracies to networks and contracting, mainly of ACTEW, and later ActewAGL, to carry out what had basically been public service administrative duties. This section of the thesis discusses some of the implications of the changes as they relate to various themes of the thesis.

SELF-REGULATION AND TRUST

While the various legal codes state otherwise, most regulatory schemes in the ACT are effectively self-regulatory. Self-regulation in the ACT allows ACTEW to meet its regulatory obligations with minimal supervision. Sometimes this is a result of the 'trust' that exists between actors. At other times it is the simple realisation by regulators that they do not have any alternatives other than to depend on ACTEW to meet certain tasks.

Self-regulation

The way the ACT conducts its regulation raises the question about the validity of the self-regulation command and control dichotomy. As Sinclair (1997) contends, the dichotomy might not be very sharp. Different regulatory problems require different levels of enforcement. As demonstrated in the ACT, self-regulation with clearly set standards of reporting allows the regulator the leverage to act if necessary. While a challenge may be raised that it is possible corporations may not give honest accounts where such information reflects poorly on their performance, such an instance is bound to happen even in command

and control situations (Gunningham and Rees, 1997). As demonstrated by one American study, the EPA can only afford to visit one per cent of factories in a year, meaning that most schemes are self-regulatory in effect (Potoski and Prakash, 2004). Regulation occurring in a situation where information and other regulatory resources are fragmented can only realistically occur by engendering conversations between regulators and those they regulate. Such 'regulatory conversations' are as much a part of regulation as are rules and regulatory standards and will gain more prominence as regulatory spaces grow larger with more entrants (Black, 2002b).

Trust and regulatory practice

Another major theme in this study is the idea of trust. Trust in a regulatory sense is not automatic. Trust is developed through repeated interactions and informal expectations that parties will follow predictable ways of doing things. Such trust can lead to the party in whom it is being vested avoiding responsibility since it does not always come with formal arrangements for enforcement. The possibility of betraying trust is the essence of Susan Shapiro's (1987) misgivings about the undesirability of 'impersonal' trust. Critics claim that repeated interactions could lead to erosion of the distance required to keep regulators and those they regulate professional (Stigler, 1971).

Policy communities encourage the building of trust because of such repeated interactions and the nature of networks in resisting change (Marsh and Rhodes, 1992, p. 262). The importance of a modicum of trust in regulation cannot be overstated: it helps engender a spirit of openness. Such trust is thus the 'currency' of regulatory relationships in a 'governance' context. Regulation is a matter for both the regulated and the regulators; interpretation of what is proper or not is subject to contention between actors (Shearing, 1993a). Makkai and Braithwaite (1992) found that in a nursing home, if supervisors trusted the nurses to do their work, then nurses acted in a trustworthily manner.

Trust does, indeed, lead to positive outcomes as shown in the ACT regulatory space. Shapiro's concerns, however, are not unfounded. Trust requires vigilance; familiarity can breed complacency and neglect. Once or twice in the past in the ACT, stability of the policy

environment has bred negligence. The burning of the Cotter Catchment is one example: it caught actors unawares:

> So in January of course we had a horrible bushfire, and it was because the people who had control of the environment had locked up all the forests and did not keep them cleared. So when came the driest cycle in fifty years we not only had a bushfire, we had a conflagration (Interview with Paul Perkins, 15 November 2005, Canberra).

The repercussions of the bushfires are going to be felt for a long time to come even if the Cotter Catchment looks to be recovering faster than was expected (White et al. 2006). Massive investments have since been made in regenerating the Cotter and ensuring that there are enough water treatment plants. Investments have also been made in transferring water from some of the ACT's storages in the Cotter to the Googong Dam. Whether these would have been made without the urgent imperative arising from the bushfires is debatable.

The choice and deployment of tools of government

While the concepts of 'policy networks' and 'policy instruments' are common in the literature, the two continue to be considered in isolation from each other (Bressers and O'Toole, 1998). Policy communities work by encouraging consensus through engendering cooperation and interdependencies between actors. As a consequence they are likely to select instruments that encourage such consensus. Furthermore, because regulation is contested between societal actors, 'government will select the least intrusive instruments' (Woodside 1998, cited in Pierre and Peters 2000, p. 41). In the ACT case study, what emerges is that regulatory programs that are inherently coercive end up being changed considerably in application to emphasise communication and education, both of which are more likely to engender cooperation, in contrast to legalism.

Besides persisting with educating offenders and not cutting off their water supply, there is evidence in the ACT that government undertakes widespread consultations to build

consensus before embarking on major water projects. According to Paul Perkins, formerly CEO of ACTEW:

> The best consultation is done by ACTEW. I call it 'Daniel in the lions' den'. In the old Christian scripture they talk about Daniel amongst the lions. Well, I used to call it 'Daniel in the lion's den' approach then. I would go out to all the stakeholders, say this is what we plan to do, what do you think? And they were fighting! But of course I used to learn a lot from it and get wonderful ideas (Interview with Paul Perkins, 15 November 2005, Canberra).

Public consultations in the ACT are a way of life in the water sector and having them necessitates conversational relationships between actors. As an example, the 'Future Water Options' study that was made before deciding on whether the ACT needed another dam was preceded by intensive consultations by ACTEW:

> ACTEW did research on that, it did the reports on all those matters. We had ACTEW's document peer reviewed, said to our peers, 'this is what ACTEW says, this is their advice' and we put it across to government. We synthesised that and gave it to government and government made the final decisions (Interview with Peter Ottesson, 16 November 2006, Canberra).

Clearly the choice of ACTEW as the lead agency in this matter would look ill-advised, given ACTEW's objectives of selling more water. Yet on the other hand, ACTEW retains the best human and other capabilities over and above any other organisation in the ACT, and thus it appears like a practical decision to allow it to proceed with the consultations. As an example, with specific reference to the 'Future Water Options' study, there were misgivings in the community:

> Some areas of the community were suspicious of ACTEW. They felt ACTEW would be biased, interestingly though ACTEW came out and said there was no need to build another dam (Interview with Rosemary Purdie 15 December 2005, Canberra).

Despite the misgivings, the community became involved and contributed to the discussions; likely enhancing it's support of subsequent findings.

Coordination as consensus building

The ACT's demand management program does not only mix regulatory instruments to achieve policy aims. An integral part of the strategy is to deploy regulatory power across actors whose multiple actors, through whose interdependent activities in regulation build towards the overall objective. The CEWG and the SEWCG as coordination mechanisms are horizontal rather than the more familiar hierarchy found in most texts (Kettl, 2006, p. 371). As stated earlier, coordination structures such as CEWG and SEWCG allow the dominant coalition in water policy to congregate and define problems and strategies to be used in addressing those, as well as the resources needed to do so.

However, a further interpretation to the ACT's approach however is that coordination strategy the ACT is a 'redundancy' approach to service provision. In this strategy, a failure by one of the regulators to carry out its mandate with regard to demand management effectively could be offset by another's capability. In this way, actors rely on others' strengths to offset their shortcomings, without any direct exchange of resources. Coordination by redundancy resonates with Martin Landau's perspective on service provision in a fragmentary environment (Landau, 1969). While criticisms of this approach centre on the idea that it is duplicative and wasteful, the tendency is that when several actors act to carry out a part of the activity in which they have an interest, the activity remains 'under control' (Majone, 1996b, p. 301). In the end analysis, the 'coordination' of activities through dispersal of duties means that actors can depend on others for coming up with ends that work towards the common objective.

REGULATORY ACCOUNTABILITY AS A STABILISATION MECHANISM

Ensuring accountability is a major problem that confronts policy networks (Rhodes, 2006a). In ACT water policy, however, accountability mechanisms are used to insulate ACTEW further from external scrutiny. Insulating ACTEW from outside scrutiny is attained through keeping dissenters outside the regulatory processes or, alternatively, deflecting ACTEW's failings to the government of the day. Indirect tools of government entail the use of third parties such as private businesses and non-governmental

organisations in public policy. Government involving third parties leads to the inevitable result of accountability loss; public accountability is replaced by private accountability.

ACCOUNTABILITY

There are several mechanisms for keeping regulators accountable. For the ICRC and the ESCC, accountability is ensured through the need to give reasons for decisions, appointment of commissioners by the government of the day, financial reporting, and submitting annual reports to the ACT Legislative Assembly. The requirements of skills, political neutrality and integrity are summarised by the senior commissioner of the ICRC:

> We are appointed by the government of the day, for five years. We are required to have certain levels of expertise. One of the commissioners is a lawyer–a law professor at the ANU, Robyn Creyke; and the other one is Peter McGhie who has been a businessman in the banking sector, and myself as an economist-policy adviser with Price Waterhouse Coopers for twenty-three years. That is the sort of backgrounds that the commissioners have (Interview with Paul Baxter, 25 November 2005, Canberra).

Appointments of regulators, while they have their shortcomings, are a means for politicians to ensure accountability before regulators carry out their duties (Majone, 1996c). The major problem with using appointments to ensure accountability, however, is that the 'traditional approaches' of accountability, especially accounting to the legislature, is largely lost in a networked environment (Mulgan, 2003).

The ICRC and the ESCC account to multiple principals, with less accountability to the legislature. As narrated by the ESCC case manager:

> The utilities will not hold us directly to account. They may say something to the Council, if they saw something that they really thought was disturbing. They may say, 'it is a little rich that you are getting Mercedes Benz cars'; then secondly appeal to the ICRC; then to the Government and say, 'look, this whole structure is not working, these guys are squandering our licence fees' ... The DoJCS [Department of Justice and Community Services] is the people who have written the law we operate with. DoJCS employ the administrative staff for the Council. We are public servants. The minister appoints council members. There is a list of requirements that say things like you should have certain kinds of background (Interview with Kerrie Brotherton and Bill Pearcy, 3 November 2005, Canberra).

On the other hand, departments that carry out regulatory duties see themselves as accounting primarily to ministers, who then account to others, in particular the Legislative Assembly and the electorate:

> Government agencies are always ultimately accountable to the minister. We respond to the community, we respond to individual licensees, key stakeholder groups, like other agencies, ACTEW, conservation groups, Environmental Commissioner, industry groups, irrigation consortia like the golf courses. Our accountability is to the minister, who reflects it to the community (Interview with Peter Liston, 16 November 2005, Canberra).

Yet with departments, their regulatory accountability is conducted more inside government offices, and not in public like the ICRC and the ESCC. This form of accountability is thus placed on the minister and is less subject to external scrutiny like those of independent regulators.

ACCOUNTABILITY AS EXCLUSIONISM

It seems ACTEW want as little regulation as possible. They deem regulators' calls for more information as unnecessary interference. For instance, in a submission to the Treasury, Messrs Costello and Mackay, the executives respectively of ACTEW and ActewAGL, decried regulators who insist on closely regulating their corporations:

> Such an approach creates tempting opportunities for those in regulatory roles to substitute their judgment on technical questions for judgments by utility management. That raises the question of who has the best technical skill base and industry knowledge to make such judgments, government agencies or those whose professional careers have taken them to positions of senior responsibility within the industry (Costello and Mackay, 2004, p. 1).

Perceptions are prevalent that ACTEW is being pulled away from protecting the public's interests to making profit for its shareholders the ACT Chief Minister's Department and the Treasury. Rightly or wrongly, regulatory practices, legislation and codes of practice are perceived overwhelmingly to favour ACTEW or the ACT Treasury's interests ahead of those of consumers. Part of the problem has come about because of a change in the ACT's

political landscape. Since the last elections in 2005, the ACT has had for the first time in its history, a party holding an outright majority in the Legislative Assembly:

> This year is the first that there has been only one crossbencher. There is Labor, who has an outright majority; there are the Liberals, who even if I vote with them do not have the numbers to win anything. So my vote does not count ... I can't win a motion unless the Government votes with me (Interview with Deb Foskey, MLA, 24 November 2005, Canberra).

The current state of affairs in the Legislative Assembly contrasts sharply with past situations when crossbenchers' support was needed to pass legislation. This made for more rigorous deliberations in the Assembly. The ruling Labor Party appears to use its majority to shield ACTEW from parliamentary scrutiny. One of the Assembly's mechanisms to hold ACTEW accountable is through budgetary allocations. This instrument has been weakened because of practices emerging with an outright Legislative Assembly majority. When a budget comes to the Assembly it is too late for MLAs to change its contents because:

> It has already been through the Government's own processes which are the departments putting their wish lists forward and then that goes to cabinet and ministers fight each other for which bit of government gets more, and it gets into the budget and it comes to us. All that is invisible and we do not know what goes on (Interview with Deb Foskey, 24 November 2005, Canberra).

Further, its status as a public-private entity is causing discomfort in some regulatory agencies because of a perceived slipping away of openness. One conversation with a regulator went this way:

> Regulator: But the effect of corporatisation has been very marked in the environment ethos, it has really gone backwards, that is our experience.
>
> Interviewer: What are the signs that it has gone backwards?
>
> Regulator: Things like the willingness to be part of the whole environmental debate, they still talk about it but it's not as was the case previously, the data is not as freely available as it was before. They have to be accountable. They are a lot tighter as an organisation now
>
> (Interview with Rosemary Purdie, 15 December 2005, Canberra).

The views of this particular regulator are by no means isolated. ACTEW, it seems, uses its partnership with ActewAGL to appear like a public or a private organisation depending on the circumstances:

> I sometimes wonder if the tail is wagging the dog, whether AGL is running the ACTEW priorities. It is interesting when you see who does the water restrictions and water restrictions are not popular, and it's ACTEW. And it is ActewAGL who does popular things, supporting the footballers, the basketball or whose name is on all the buses (Interview with Anonymous Informant 1 Canberra).

One of the mechanisms for eroding accountability is said to be a systematic removal of options for accounting informally. Such approaches are particularly peculiar in Canberra because:

> One of the things about Canberra, which is unique to Canberra, because it is a little city-state, 300 000 people in a very small area, everybody knows everybody else (laughs). And there are a lot of things that you can do informally. There are fairly open relationships between organisations (Interview with Anonymous Informant 3, Canberra).

ACCOUNTABILITY AS 'PASSING THE BUCK'

Further, politicians in Canberra use accountability to shift the blame for unpalatable policy outcomes. Concerns that regulation often replaces political control exist in Canberra as exemplified by the debate over Michael Costello's salary where politicians were only too happy to shift their inaction to the board of directors:

> The ACT Government says there is nothing it can do about the wages paid to ACTEW chief executive officer Michael Costello ... ACT Treasurer Ted Quinlan says the ACTEW Board determines the package and that the Government's hands are tied.
> (http://www.abc.net.au/news/newsitems/200506/s1397487.htm)
> (Accessed on 13/11/2006).

In the same article, an ACT trade union spokesperson is heard as complaining that no one is worth the $450 000 per annum which Costello allegedly receives per annum. It is $150 000 more than the Chief Minister's salary.

STRENGTHS AND WEAKNESSES OF THE NETWORK APPROACH FOR THE RESEARCH

This is a theoretically informed study of water policy-making, but it is also one of the few applications of a policy-making approach to Australian government that explicitly utilises the policy network approach to study regulation and does so through a detailed empirical study.

In this thesis I have sought to demonstrate the value of the policy network approach to demonstrating the intricacies of water policy-making in the ACT. The network approach assists in linking current policy outcomes to historically influential events. Actors in policy activity interact before and after as well as during the research period. What links these actors together are webs of interdependencies that are based on the need to exchange resources such as knowledge, finance and legal-formal power. Most of these dependencies can be proved. Furthermore, a policy network approach demonstrates that actors interact not only in the processes under investigation but in others as well. Another observation about network policy analysis is that actors react not only to the acts of others involved in the policy matter under observation.

Actor interdependence of is an insight that points to a subtle yet profound point; that actors' policies operate within larger structures of symbiosis than simple, immediate, observable relationships. Yet in these interactions, I have shown that ACTEW, in conjunction with the Treasury and variously with other government departments have exercised sizeable amounts of discretion as to what policy problems needed attention and what amounts of public resources would be dedicated to solving those problems. The interdependent nature of the various actors in this network has not meant that there is equality of authority

between them; some, with ACTEW at the centre have been able to exercise amounts of policy leadership.

Challenges to the network approach remain. A major problem to policy network analysis is that it fails to explain more abrupt change (Richardson, 2000). Instead of creating and maintaining stability, it is the policy communities that have been put under pressure by governments because they had led to sub-optimal outcomes. In the United Kingdom, for instance, the Thatcher Government placed existing water policy communities under immense pressure and subsequently radically reformed many of them through privatisation. The dominant engineering policy communities were dissolved. By selling off some of the state-owned enterprises, the government rearranged existing policy-making styles. New networks were formed as a result, meaning that policy communities failed to lead the transformations and thereby stabilise them.

A further reason to challenge the policy network approach is the realisation that now there are more avenues or policy arenas for policy-making available to interest groups. Availability of more policy-making arenas means that groups can utilise such avenues to negate the control of any dominant networks. For instance, in Australian water policy the National Water Initiative often bypasses state governments to fund local governments and catchment groups directly. Funding such entities directly reduces the capacity of policy communities to control policy agendas through funding. Moreover, by taking away funds from dominant actors in policy communities, government can break up policy communities. Catchment management groups are another example. Catchment management provides groups with an opportunity to participate in policy that might not otherwise be available. The burgeoning of policy arenas means that policy communities cannot claim control of policy-making.

A further challenge to the policy network theory is that knowledge is fragmented. Universities, international organisations, think tanks and consultants can claim expertise of one form or another. The generation of new ideas and knowledge tends to cause a re-examination of existing ways of doing things. Since some of this knowledge can exist

outside of dominant networks, it can destabilise the way policies are made. When knowledge is spread across many actors other than those in the dominant policy community, realignment of network actors has to occur since knowledge and information are crucial to the performance of policies.

IMPLICATIONS FOR NETWORK POLICY STUDIES AND THE AUSTRALIAN CAPITAL TERRITORY

In the following subsection I draw insights from the ACT case study that emanate from the policy network concept. I have argued that policy network analysis best explains the continuance of a stable policy environment in ACT water policy-making. At the centre of such stability has been a series of dependencies between institutions involved in water policy in Canberra, interdependencies that have linked the institutions together in relationships, which have led to a stable policy environment.

I have further pointed out that the relationships and interdependencies mentioned exist mainly at the level of institutions. It is the institutions, in pursuance of their policy objectives that begin the series of relationships, which lead to the type of exchanges mentioned. Such institutional linkages reflect one of the central themes of the Rhodes model of policy networks; that it is structural relationships between institutions that were important to how networks functioned. The resource dependencies and exchange of resources in the ACT are many and varied. The ICRC, which is the major economic regulator, has depended on ACTEW for informational resources at the behest of ACTEW so that the ICRC may continue to set proper water tariffs for water. In some instances, it appears that the ICRC has even depended on what ACTEW would have deemed to be commercial in confidence information generated at the corporations' expense as witnessed by the corporation's passing of its 'Willingness to Pay' study to the regulator. Similarly the Environment ACT has depended on ACTEW for specialist personnel at the behest of the corporation in order to carry out certain of its tasks.

The ICRC has relied on ACTEW's informational resources. Exchanging resources to attain policy aims occurs through all the regulatory activities studied in the thesis. In economic

regulation, a major place for the exchange of resources is personnel. The Treasury, ACTEW, ICRC and ACTPLA all have exchanged personnel at one point or other during the short history of the ACT's corporatized water policy. Beyond human resources, informational resources have been at the centre of exchanges. In exchange for financial and informational resources at ACTEW's behest, some local academic institutions such as the Australian National University and Canberra University provide their own research services such as occurred with the ANU when they studied the possible effects of the Canberra wildfires of 2003 on the water quality of the territory.

However, whereas it is these structural linkages between institutions that are the primary source of the policy stability, they also spawned some interpersonal linkages that further led to the cementing of relationships and therefore continuation of stability. I therefore point out that in the ACT's water policy sector, interpersonal linkages have also been important as a source of network stability and therefore policy continuity.

In approaches reflective of the Wilks and Wright (1987), model of government industry relations (GIR), interpersonal relationships do have an impact on network stability in the ACT. One reason for this might be due to the ACT's size. The ACT, while an independent jurisdiction within the Australian Commonwealth is still very small in terms of both population and physical size, possibly increasing the chances for people to interact closely, informally and more regularly between institutions, thus exchanging resources more often. Furthermore, historical factors, besides matters of size can also explain the importance of interpersonal relationships in the stability of policy networks in the ACT.

At the beginning of the microeconomic transformation that led to the corporatisation of ACTEW, it was ACTEW and to some extent the Treasury that held the vital human capacities needed to make the new dispensation work. It was logical that the bulk of personnel required for the new regulatory institutions in the water policy sector would have had prior contact with ACTEW, and thereby pre-existing interpersonal relationships with ACTEW employees, past and present. As Paul Perkins, former CEO of ACTEW who was

instrumental in the transition pointed out, the skills required to make the microeconomic transformation work were novel:

> Such people... such skills don't exist in the world. How can they, it has never been done before. Nowhere in the world had we done this sort of optimizing the efficiency of microeconomic reform, how the economy operates, taking into account not just the traditional model of government, private sector and economics by itself. This time, this cycle there is a demand to engage the environmental issues in sustainability and a mix of partnerships... (Interview with Paul Perkins, 15 December, 2005, Canberra).

The enormity of changes akin to the microeconomic transformations in question is not likely to be repeated again soon. Even if it were to happen, the creation of skills in the regulatory and management sciences has now become so commonplace that no single organisation may dominate such exchanges the way ACTEW came to dominate in the ACT. Thus personal relationships built during the era of ACTEW's self regulatory era are coming to an end; the current leaders of the ACT's water sector agencies are people who just ascended those positions. At ACTEW, Michael Costello was headhunted from outside of the ACT. On the other hand, Jim Service is the only member of the founding board of directors of ACTEW in the current board. Ross Knee and Aspi Baria who now form part of ACTEW's management team might have begun in ACTEW but were in positions more junior to those they hold when ACTEW was corporatized. It can be surmised that while interpersonal linkages have been important to the continuity and stability of policy of the water sector in the ACT, such interpersonal linkages took place within an 'anomalous political entity'. The ACT is a very small city-state whose professionals learned their skills in what was an absolutely dominant in policy-making. They were then not dispersed spatially with most of them continuing in Canberra and thus further working together even though in different organisations.

Power dependence further clarifies the ACT situation terms of the discretionary powers that are retained by the ACTEW-Treasury axis, which is the ACT's dominant coalition. ACTEW is the ACT government's major revenue earner. The Treasury is one of the two voting shareholders in ACTEW. Both organisations set the tone for the developmental requirements of the Territory. It is the Treasury that sets the targets that ACTEW has to

meet for any financial year; in order for the Treasury to meet its fiscal objectives for the Territory. Yet in this endeavour, the treasury's public servants, rather than its politicians perform the bigger role in the target setting, which culminates in the treasurer signing off the letter to ICRC at the beginning of any financial year. This letter precedes price-setting events for the ICRC. It is therefore both the Treasury as the custodian of ACT finance and ACTEW that set out the target of which resources will be sought and in what amounts.

In this sense, the application of the policy networks theory in the ACT largely reflects the Rhodes model, but yet also goes beyond that particular model to find answers to approaches to policy-making. The Rhodes model is reflected in the mainly structural relationships between institutions as the defining characteristic of the operation of the networks in the ACT. The water policy network at the behest of water policy in the ACT also reflects the Rhodes model in that it is built on resource dependencies and resources exchanges. Furthermore, the centrality of ACTEW and to an extent the Treasury in the network makes them the dominant coalition. It is their priorities that are largely reflected in policy. The pricing of water services reflects the Treasury's need to extract as much revenue from ACTEW as can happen without imposing undue burdens on the community.

However, there is a possibility that in order to fully explain the nature of policy networks in the ACT, one has to go beyond the Rhodes model. The reason for this is that the Rhodes model underemphasises the role of interpersonal relationships in the structure and function of policy networks, which is better explained in the GIR as espoused by Wilks and Wright. Whereas historical factors largely account for existing interpersonal relationships that characterise the network, it remains a fact that interpersonal relationships are very important to the functioning of the policy network at the behest of water policy in the ACT. Such relationships were important for the continuity of organisational cultures. As shown earlier, the exchange of personnel between ACTEW and its subsidiaries such as ECOWISE Environmental and the Actew-AGL partnership explains continuity. The same can be said of the exchange of personnel between ACTEW and ACTPLA and the Treasury and the ICRC. As stated by ACTEW's manager for regulatory strategy, a telephone call often suffices for explaining anomalies in water quality. As explained further, by an opposition

legislator, Canberra relative size of about 400 000 makes it a city state, within which interpersonal relationships made the possibility of informal interactions between people doing business for organisations the centre of policy-making efforts.

CONCLUSION

The contribution of this study to knowledge is two-fold. The first contribution is that of writing an account of regulatory policy-making about water in the ACT. The second contribution is introduction of a policy network analysis to the analysis of water management and regulation in Australia. At the core of this theory are traceable relationships of exchange between policy actors in the ACT, which bring about policy implementation. Whereas the exchange relationships are premised on structural exchanges between organisations, interpersonal relationships were important too. These interpersonal relationships are a result of two things; the ACT's relatives size as a small city-state entity and the fact that most former employees of ACTEW and other government departments were redeployed to other organisations upon corporatisation. These redeployments were necessary because ACTEW held most of the requisite competencies required building credible regulatory institutions. The interpersonal relations were thus built on a previous era and persisted into a new policy environment.

The study brought together diverse literatures and detailed knowledge of actors into a single account of how regulation is used to manage water in the ACT. 'Regulation' is not a homogenous concept. It covers a great array of activities. These include environmental flows, water tariffs, customer relations, managing intergovernmental relations and water restrictions. While annual, monthly and other reports on regulatory policy are made, they are published without any theoretical analysis.

The second contribution of this study is the introduction of a policy network analysis of the Australian water sector. The study described in detail the role of policy networks in enabling policy change in the ACT. While accounts of Australian public policy largely

ignore policy network analysis, this study made a practical as well as theoretical analysis of the network concept in the context of a particular field of public policy, namely water.

This study sought to find out how governments transform their means of service provision from direct government to regulation without undergoing the often-tumultuous consequences that can accompany such change. Not only is this a theoretically informed study of water policy-making, it is also one of the few applications of a policy network approach in Australian government.

Leaving a longstanding policy network to effect policy change can assist greatly in retaining stability whilst effecting change. Such an outcome was, in the ACT a result of the interdependence for resources by actors involved in water policy. Such resources include organisational capacities, finance, formal-legal authority, technical resources and information. Of these actors, ACTEW and the Treasury had the special position of wielding discretionary capacity that enabled them to guide the policy agenda. The ACT's water policy community thus encourage 'change' by not changing much in a policy field!

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Marlene Stolts	6 February 2006	Communications manager, ACTEW
Ken Horsham	23 November 2005	Formerly of the Water and Sewerage Branch, ACTEW. Now ACTEW policy consultant
Kirilly Dickson	17 October 2005 Follow-up interview; 6 February 2006	Manager, regulatory strategy [engineer by training]
Paul Perkins	15 November 2005	Manager, regulatory strategy [engineer by training] Former CEO, current chairman, the Barton Group, current Chairman ACT Sustainability Study Group
Asoka Wijeratne	15 November 2005	General Manager, ActewAGL Water Division. Email communication
Peter Liston	16 November 2005	Assistant General Manager. Water Resources, Environment ACT
John Woollard	22 November 2005	General Manager, Health Protection Services, Department of Health and Community Care
Kerrie Brotherton	3 November 2005	Case Manager, ESCC
Bill Pearcy	3 November 2005	Member, ESCC
Rosemary Purdie	15 December 2005	Commissioner, ACT Environmental Commission (Formerly Director Natural Resource Evaluation and Communication Office of the Murray-Darling Basin Commission)

David Williams	8 December 2005	President, ACT Master Plumbers Association
Stewart Chapman	2 November 2005	Senior Manager, Chief Minister's Department; Liaison Officer on behalf of CMD at the Murray-Darling Basin Commission
Karen Aguilera	2 November 2005	Communications officer, Office of Sustainability. Chief Minister's Department
Malcolm Thompson	3 November 2006	National Water Commission General manager, Water Reform Group (telephone interview)
Deb Foskey, MLA	16 November 2005	Legislative Assembly (Greens). Member for. Deputy Chair, Standing Committee on Public Accounts (Molonglo)
John Robertson	19 September 2006	Executive Director, ACT Procurement Solutions, ACT Treasury
Vicki Dunne, MLA	5 December 2005	Legislative Assembly (Canberra Liberals). Shadow Minister for the Environment; Member of Legislative Assembly, Opposition Whip (Ginninderra)
Professor Gary Jones	9 November 2006	University of Canberra CRC for Freshwater Ecology. Chief Executive Officer, CRC for Freshwater Ecology
Peter Ottesson	16 November 2006	Executive director, Office of Sustainability, Chief Minister's Department

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